CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **WC035**

DATE VERIFIED: **July 11, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 12, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: WC035

PIN: 0640100001

Subdivision, Tract, Business or Owner Name (if known): GS Stonehouse Green Land Sub LLC

Property Description: Parcel 27 Stonehouse Tract Division of Stonehouse @ Williamsburg LLC

Site Address: 9770 Six Mount Zion Road

(For internal use only) **Box** 24 **Drawer:** 8

Agreements: (in file as of scan date) Y **Book or Doc#:** 060021070 **Page:**

020030024

758 646-681

Comments

Included in file are the Declaration of Protective Covenants, Easements, and Restrictions for Stonehouse Commerce Park

060021070

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 9th day of August, 20 06, between Stonehouse Development Company LLC, and all successors in interest, ("COVENANTOR(S),") owner(s) of the following property:

Parcel Identification Number: 0640100001
Legal Description: P-27 STONEHOUSE TRACT DIVISION OF STONEHOUSE
Project or Subdivision Name: STONEHOUSE
Document No. 020030024
OR Deed Book _____, Page No. _____,
and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, monitoring, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance

work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the SYSTEM. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the SYSTEM.

9. This COVENANT shall be recorded in the County Land Records.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of the date first above written.

COVENANTOR(S)

G. P. Heath

Print Name/Title ENG HEATH
Authorized Representative

ATTEST:

Sherley C. Jefferson

COVENANTOR(S)

_____

Print Name/Title _____

ATTEST:

_____

COMMONWEALTH OF VIRGINIA

CITY/~~COUNTY~~ OF RICHMOND

I hereby certify that on this 9th day of AUGUST, 2006, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared ENG P. HEAH and did acknowledge the aforegoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 9th day of AUGUST, 2006.

Shirley C. Jefferson
Notary Public

My Commission expires: January 31, 2009

Approved as to form:

County Attorney

This Declaration of Covenants prepared by:

ENG P HEAH, CFA
(Print Name)

SENIOR MANAGING DIRECTOR
(Title)

120 TREDEGAR STREET
(Address)

RICHMOND VA 23219
(City) (State) (Zip)

804-819-2104
(Phone Number)

drainage1.pre

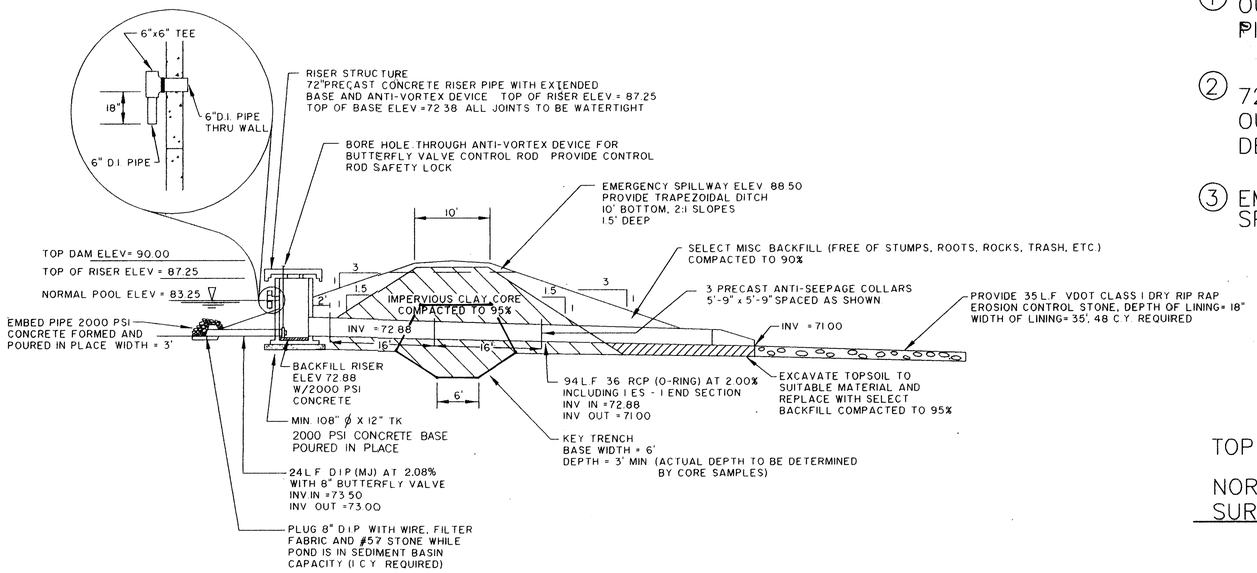
VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 21 Aug 06
at 3:17 AM/PM. The taxes imposed by Virginia Code Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK

BY: Betsy B. Woolridge Clerk

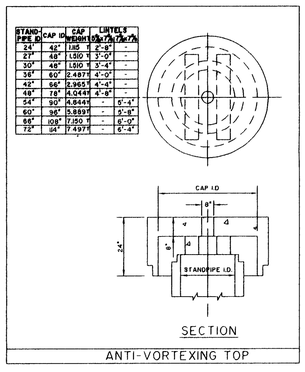
Revised 05/06



SECTION A-A

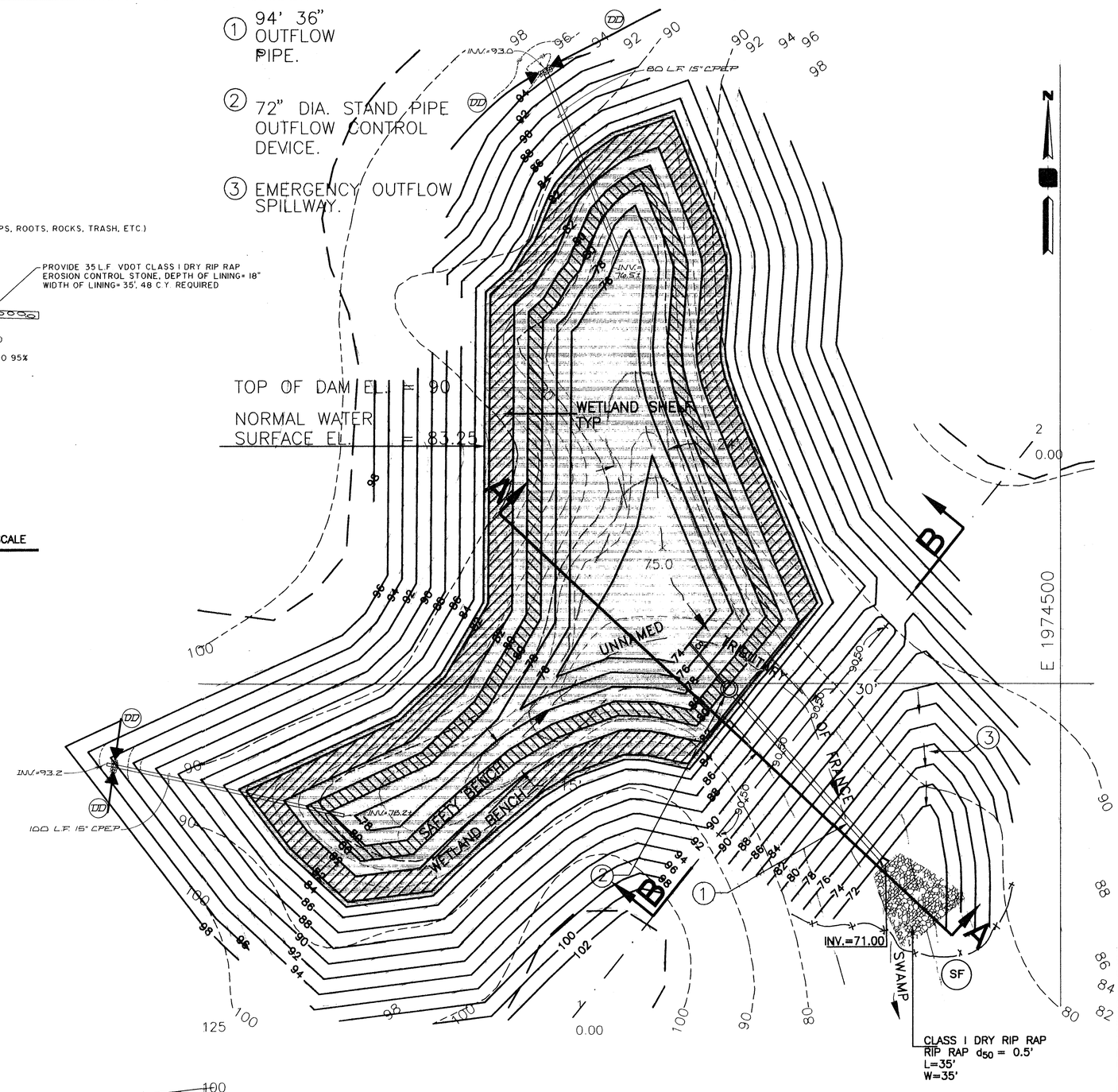
NOT TO SCALE

STAND-PIPE ID	CAP ID	CAP HEIGHT	LINTELS		
			1/2	1/4	1/4
24"	42"	1.15	2'-8"	-	
27"	48"	1.610	3'-0"	-	
30"	48"	1.610	3'-4"	-	
36"	60"	2.4871	4'-0"	-	
42"	66"	2.9557	4'-4"	-	
48"	78"	4.0449	4'-8"	-	
54"	90"	4.9449	-	5'-4"	
60"	96"	5.8897	-	5'-8"	
66"	108"	7.250	-	6'-0"	
72"	114"	7.4971	-	6'-4"	



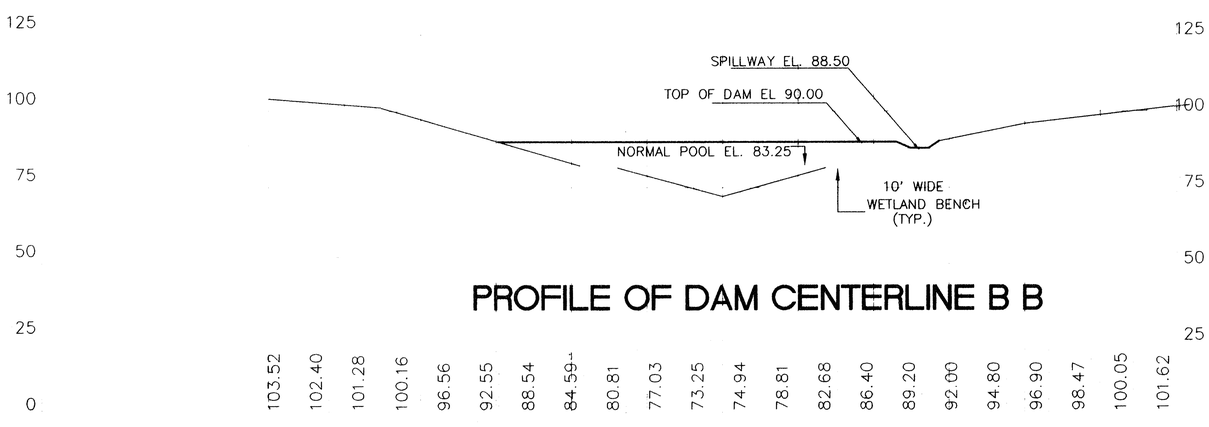
ANTI-VORTEXING TOP

SCALES:
1" =25' HOR
1" =25' VER



BMP PLAN

SCALE: 1"=25'



PROFILE OF DAM CENTERLINE B B

VDOT ACCEPTS NO MAINTENANCE RESPONSIBILITY FOR THE RETENTION/DETENTION PONDS AND IS SAVED HARMLESS FROM ANY DAMAGE CAUSED BY FAILURE OF THE BASINS AND THEIR OUTFALL STRUCTURES.

COMMONWEALTH OF VIRGINIA
JOHN L. HUTCHERSON
No 7763
CERTIFIED PROFESSIONAL ENGINEER

Langley and McDonald, P.C.
Engineers • Surveyors • Planners
Landscape Architects • Environmental Consultants
WILLIAMSBURG VIRGINIA BEACH

DES. J.L.H.
DWN. J.A.M.
CHK.
DATE 6/24/94

RECORD DRAWING 3/6/97

STONEHOUSE ENTRANCE ROAD, PHASE I
AT
COMMERCE PARK
FOR
STONEHOUSE, INC.
BMP PLAN

SHEET 16 OF 23
DISK
PROJ. NO. 89049-29-5
DWG. 029RP014

REVISED: 5/4/95 PER J.C.C. COMMENTS
REV. 12/12/94 PER J.C.C. COMMENTS

WC035_STONEHOUSE_COMMERCE_PK - 006

Langley and McDonald — Transmittal

ENGINEERS•PLANNERS•SURVEYORS

☐ 5544 Greenwich Road, Virginia Beach, Virginia 23462, (804) 473-2000

☒ 201 Packets Court, Williamsburg, Virginia 23185, (804) 253-2975

Project: STONEHOUSE COMMERCE PARK BMP #1

To: DARRYL COOK
CODE COMPLIANCE
JAMES CITY COUNTY
PO BOX 8784 WILLIAMSBURG VA 23187

From: JOHN L. HUTCHERSON

Date: MARCH, 1997

Reply requested: ☐ Yes ☐ No

Reply to:

We are sending you: BY HAND

☒ Attached
☐ Under separate cover via:

☒ Prints
☐ Copy of letter
☐ Plans
☐ Specifications
☐ Shop drawings
☒ MYLAR

Transmitted as checked below:

☒ For your use
☐ As requested
☐ For review and comment
☐ For approval
☐ Return for correction
☐ Approved as noted
☐ Approved
☐

MAR 1997 RECEIVED CODE COMPLIANCE OFFICE

Copies	Date	No.	Description
1			MYLAR of RECORD DRAWING of BMP #1
1			PRINTS " " " " "

Remarks:

Copies
1. File: 89046
2.
3.
4.

Enclosures
☐
☐
☐
☐

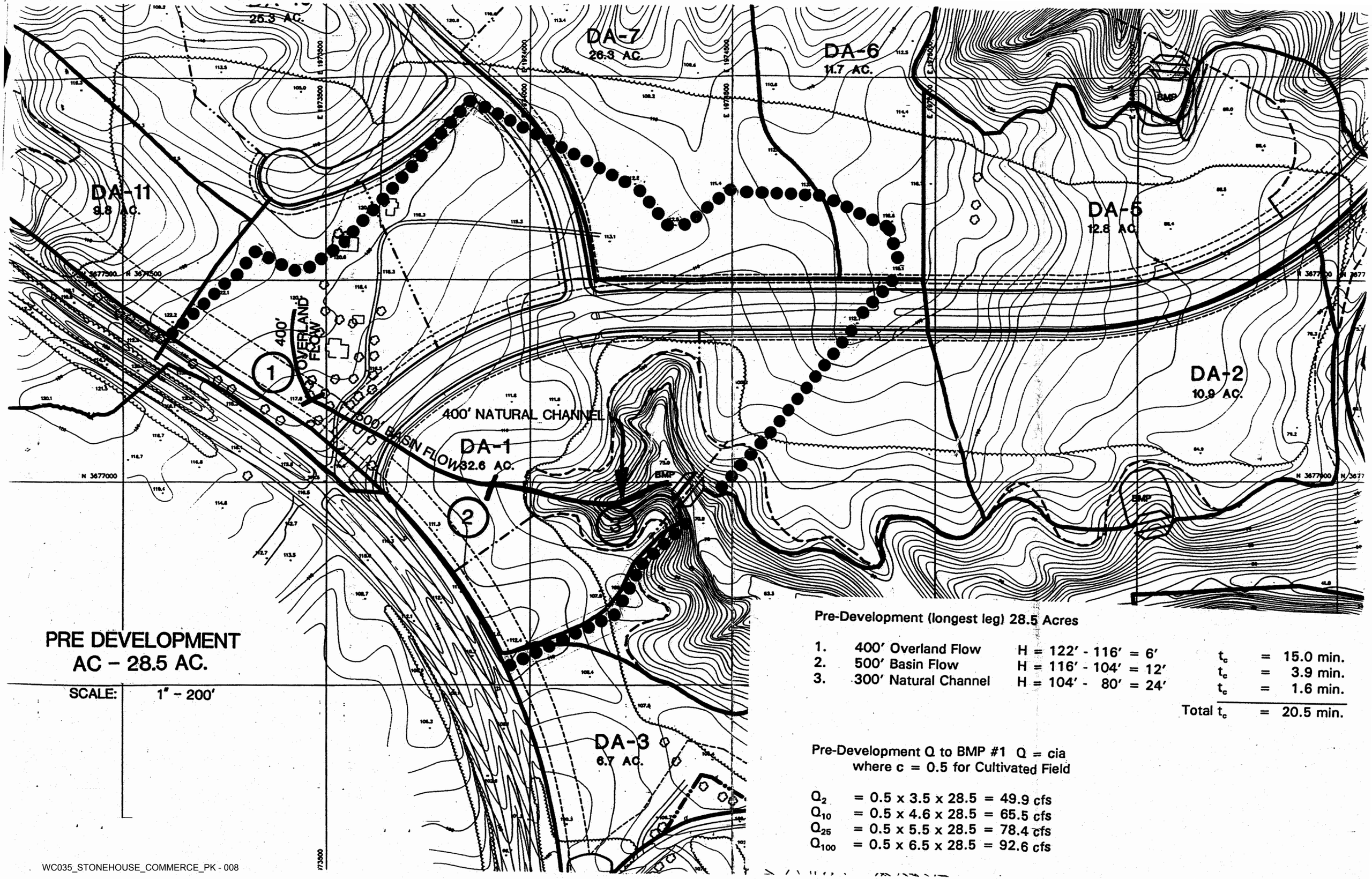
Langley and McDonald

By: John L. Hutcherson

If enclosures are not as noted, kindly notify us at once.

#4

WC035_STONEHOUSE_COMMERCE_PK - 007

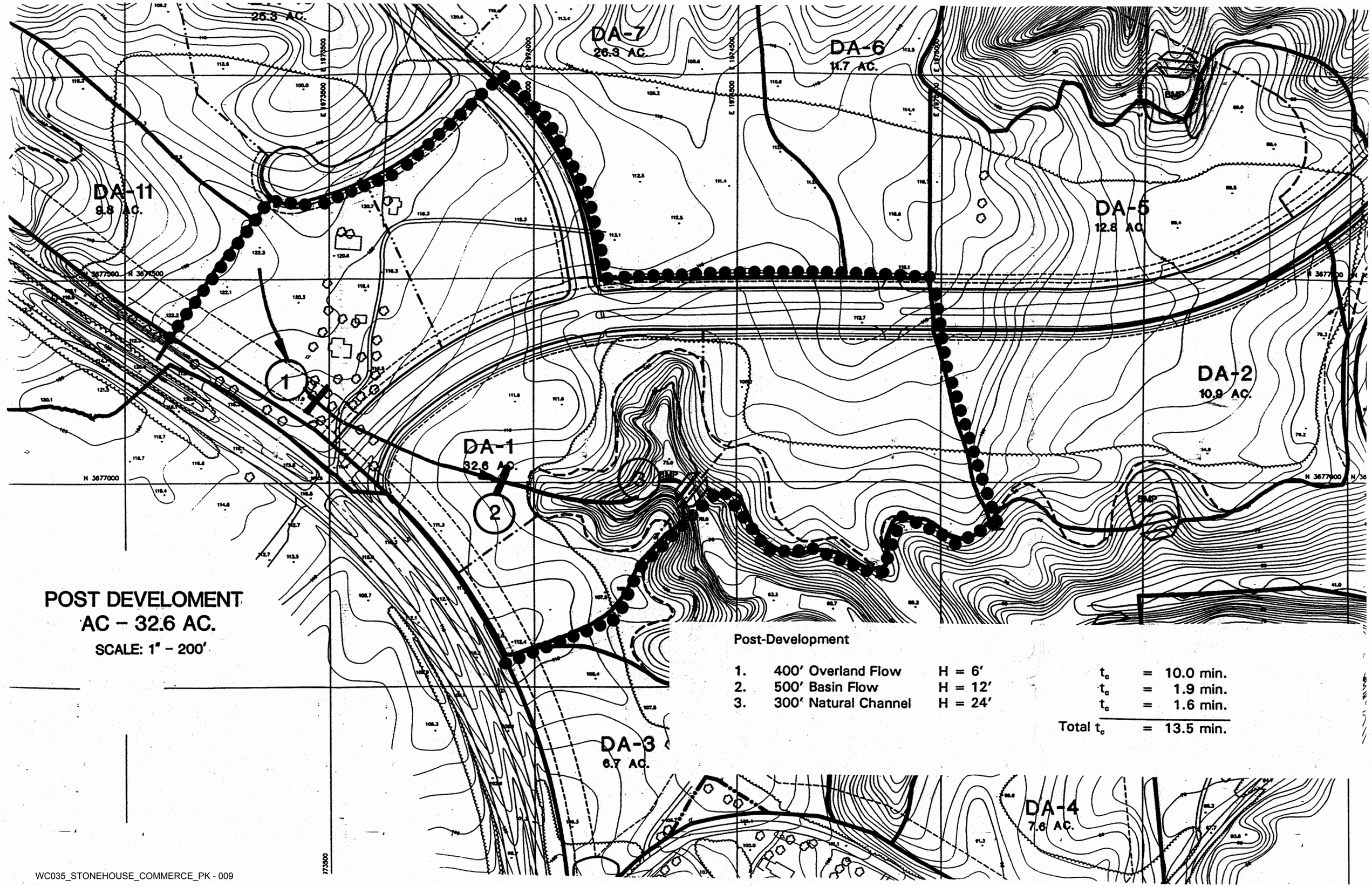


Pre-Development (longest leg) 28.5 Acres

1.	400′ Overland Flow	H = 122′ - 116′ = 6′	t_c	= 15.0 min.
2.	500′ Basin Flow	H = 116′ - 104′ = 12′	t_c	= 3.9 min.
3.	300′ Natural Channel	H = 104′ - 80′ = 24′	t_c	= 1.6 min.
			Total t_c	= 20.5 min.

Pre-Development Q to BMP #1 Q = cia
where c = 0.5 for Cultivated Field

Q_2 = 0.5 x 3.5 x 28.5 = 49.9 cfs
Q_{10} = 0.5 x 4.6 x 28.5 = 65.5 cfs
Q_{25} = 0.5 x 5.5 x 28.5 = 78.4 cfs
Q_{100} = 0.5 x 6.5 x 28.5 = 92.6 cfs



Post-Development

1.	400′ Overland Flow	H = 6′	t_c	=	10.0 min.
2.	500′ Basin Flow	H = 12′	t_c	=	1.9 min.
3.	300′ Natural Channel	H = 24′	t_c	=	1.6 min.
			Total t_c	=	13.5 min.

No.	DATE	REVISION / COMMENT / NOTE	JT
4	4/29/98	REVISIONS PER VDH & OWNER (NONE THIS SHEET)	MAR
3	3/11/98	REVISIONS PER JCC COMMENT LETTER DATED 1/29/98	MAR
2	2/4/98	REVISIONS PER JCC COMMENT LETTER DATED 1/29/98	MAR
1			

CONSULTING ENGINEERS
524B Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8894

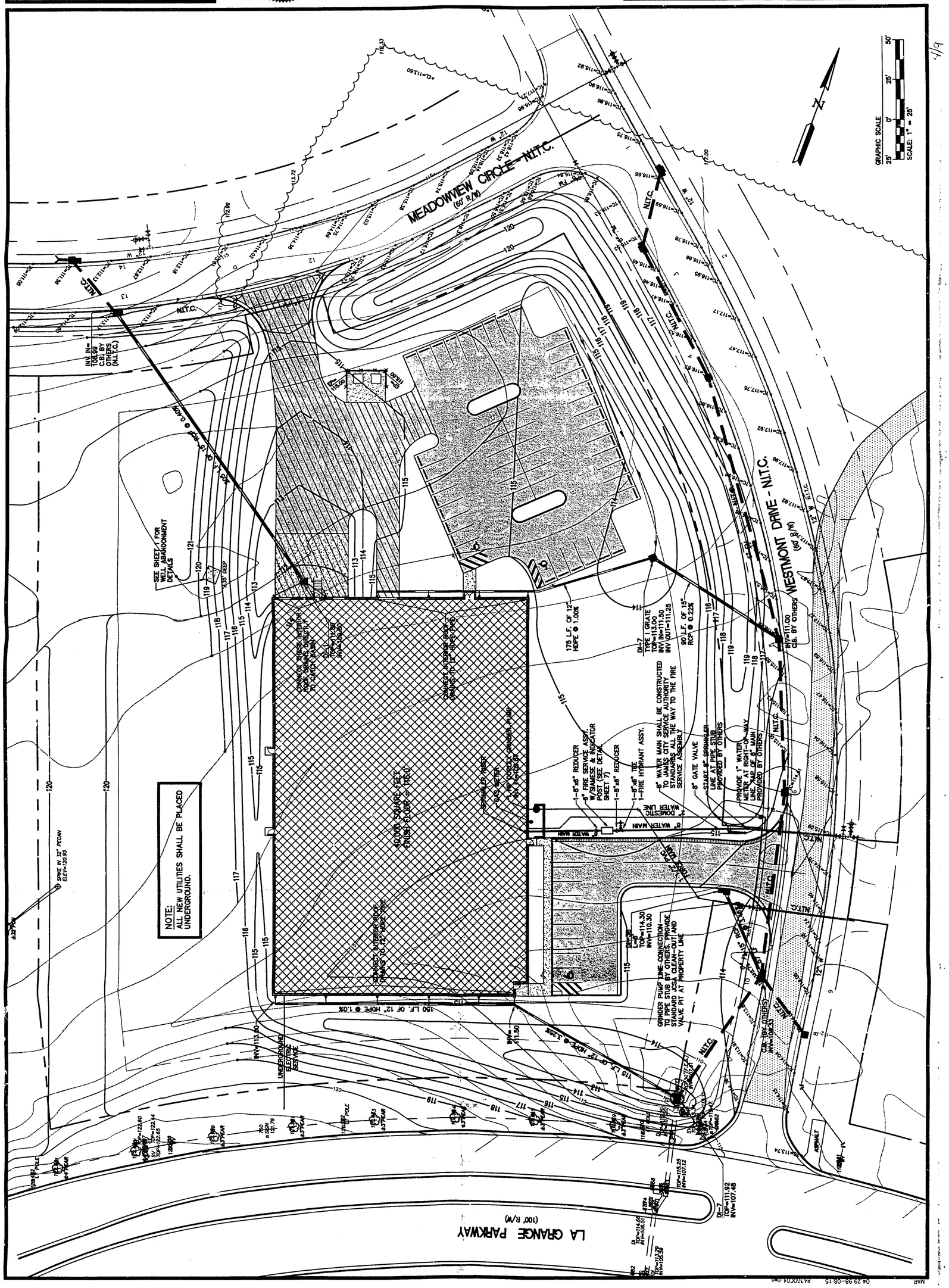
DRAINAGE AND UTILITY PLAN.

THE BARRE COMPANY, LLC

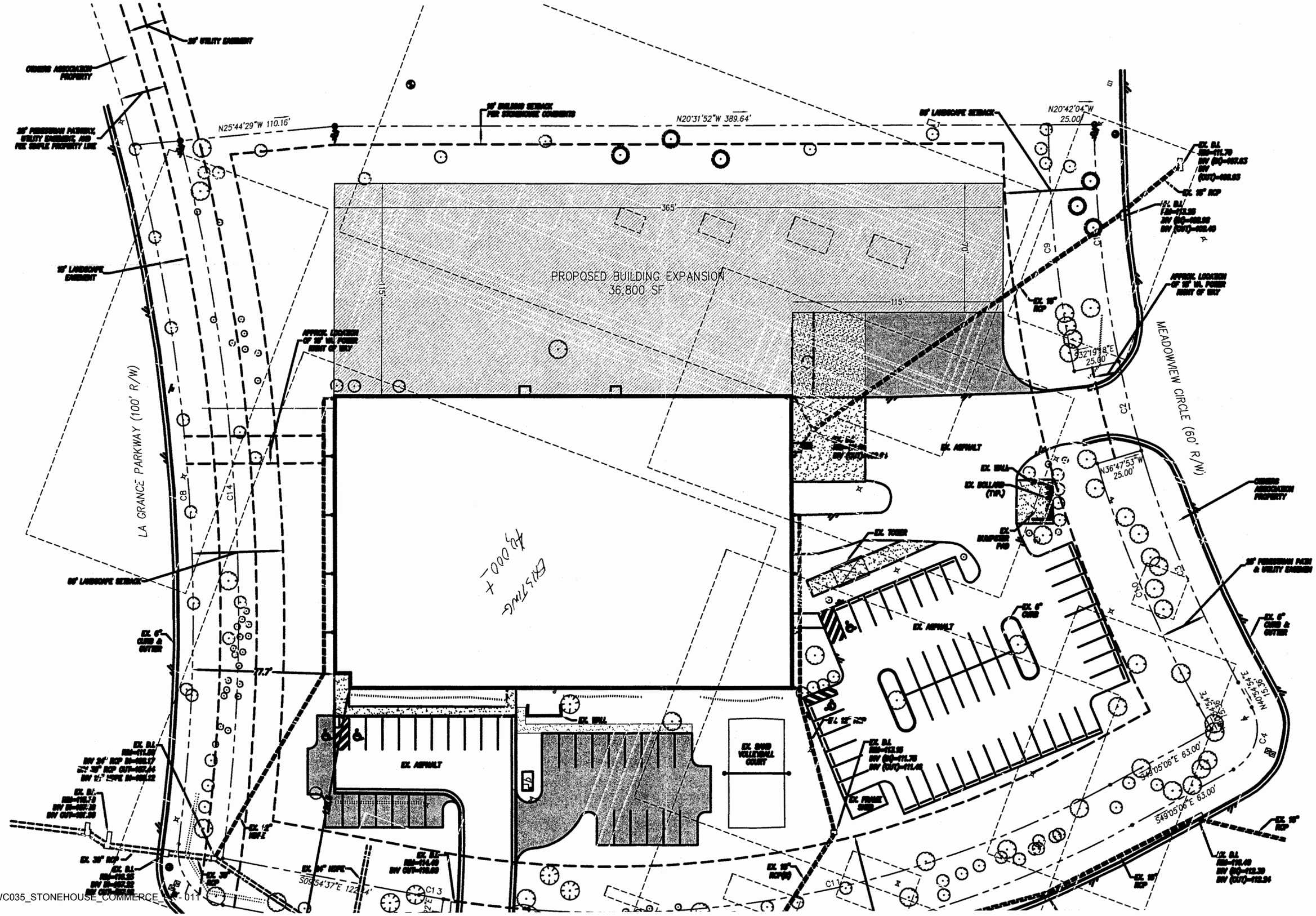
STONEHOUSE COMMERCE PARK

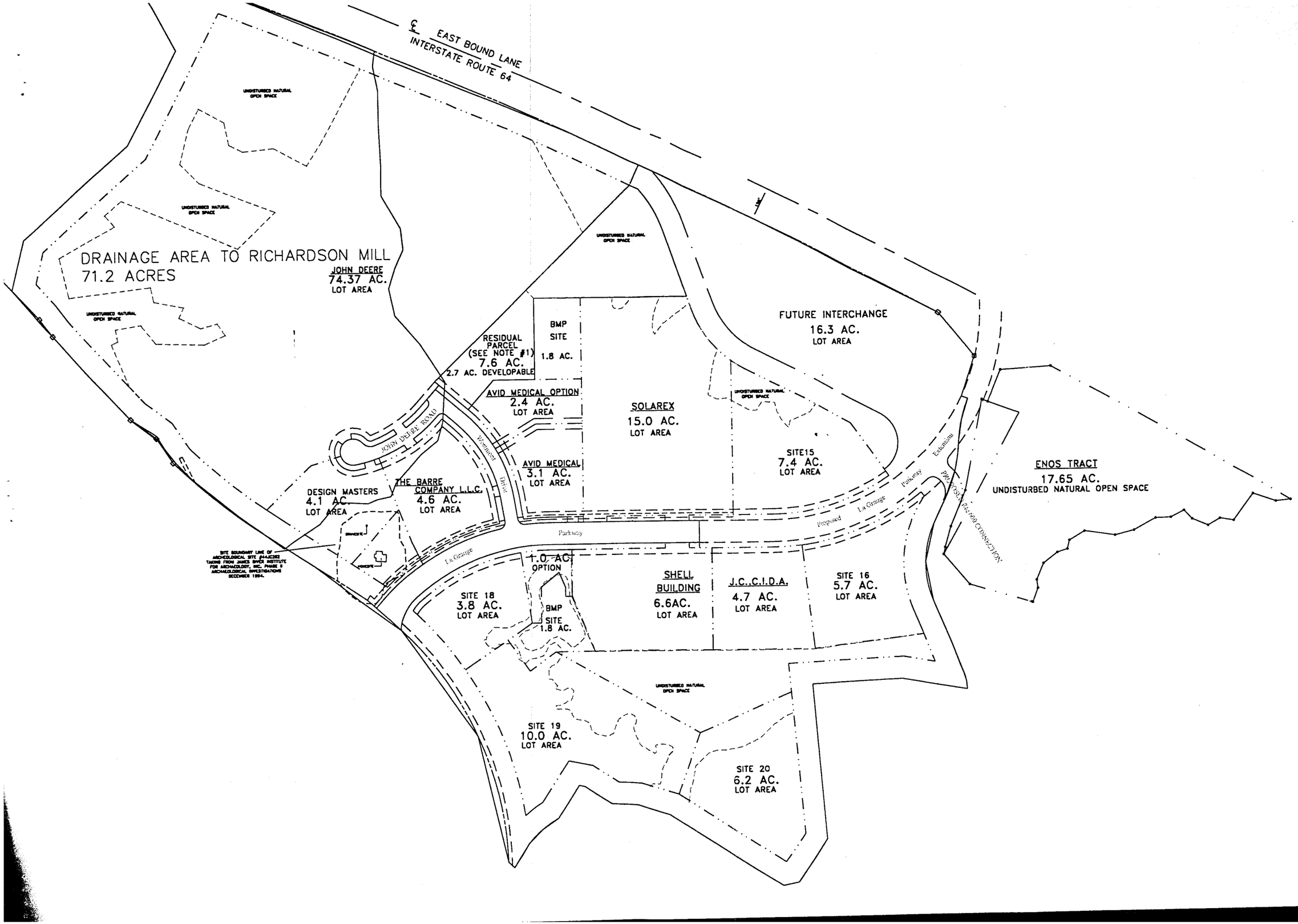
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

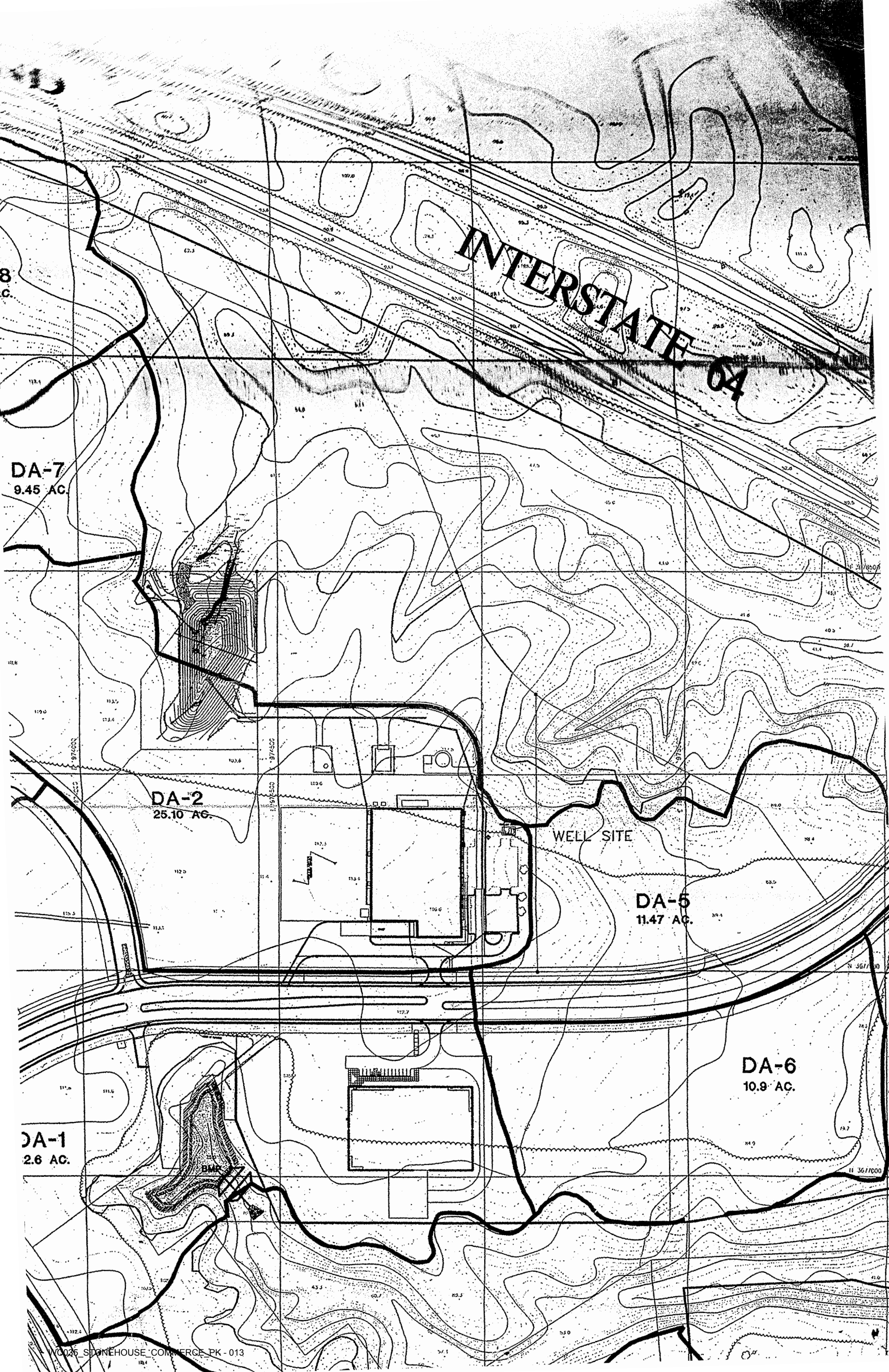
Designed RAC/MAR	Drawn MAR
Scale 1"=25'	Date 1/16/98
Project No. 8435	
Drawing No. 4	



WC035_STONEHOUSE_COMMERCE_PK - 010

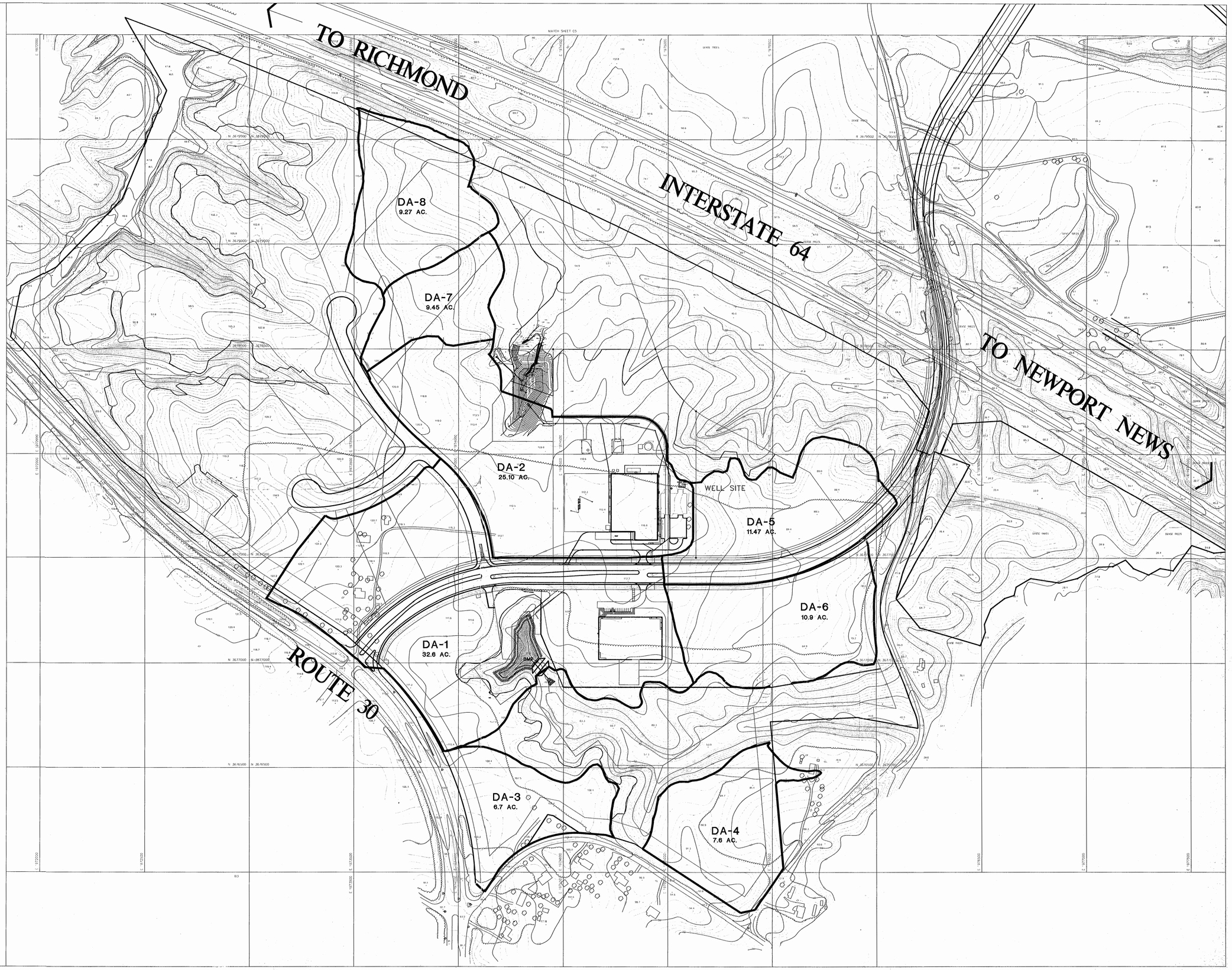

N25°44'29"W 110.16'
N20°31'52"W 389.64'
N20°42'04"W 25.00'
365'
115'
115'
70'
PROPOSED BUILDING EXPANSION
36,800 SF
EXISTING
40,000 +
LA GRANGE PARKWAY (100' R/W)
MEADOWVIEW CIRCLE (60' R/W)
EX. ASPHALT
EX. ASPHALT
EX. ASPHALT
EX. SAND VOLLEYBALL COURT
EX. WALL
EX. BOLLARD (TYP.)
EX. DUMPSTER PAD
EX. TOWER
EX. 6" CURB
EX. 6" CURB & GUTTER
EX. 6" CURB & GUTTER
N36°47'53"W 25.00'
N32°19'18"E 25.80'
N00°54'54"E 15.56'
S49°05'06"E 63.00'
S49°05'06"E 63.00'
S06°54'37"E 122.74'
C1.1
C1.3
C4
C8
C14
77.7'


℄ EAST BOUND LANE
INTERSTATE ROUTE 64
UNDISTURBED NATURAL OPEN SPACE
DRAINAGE AREA TO RICHARDSON MILL
71.2 ACRES
JOHN DEERE
74.37 AC.
LOT AREA
RESIDUAL PARCEL (SEE NOTE #1)
7.6 AC.
2.7 AC. DEVELOPABLE
BMP SITE
1.8 AC.
AVID MEDICAL OPTION
2.4 AC.
LOT AREA
SOLAREX
15.0 AC.
LOT AREA
FUTURE INTERCHANGE
16.3 AC.
LOT AREA
SITE15
7.4 AC.
LOT AREA
ENOS TRACT
17.65 AC.
UNDISTURBED NATURAL OPEN SPACE
JOHN DEERE ROAD
Westport Drive
AVID MEDICAL
3.1 AC.
LOT AREA
DESIGN MASTERS
4.1 AC.
LOT AREA
THE BARRE COMPANY L.L.C.
4.6 AC.
LOT AREA
Parkway
La Grange
Proposed Extension
PROPOSED RAILROAD CONNECTION
SITE BOUNDARY LINE OF ARCHEOLOGICAL SITE 24ALC262 TAKEN FROM JAMES RIVER INSTITUTE FOR ARCHAEOLOGY, INC. PHASE II ARCHAEOLOGICAL INVESTIGATIONS DECEMBER 1994.
1.0 AC.
OPTION
BMP SITE
1.8 AC.
SITE 18
3.8 AC.
LOT AREA
SHELL BUILDING
6.6AC.
LOT AREA
J.C.,C.I.D.A.
4.7 AC.
LOT AREA
SITE 16
5.7 AC.
LOT AREA
SITE 19
10.0 AC.
LOT AREA
SITE 20
6.2 AC.
LOT AREA


INTERSTATE 04
DA-7
9.45 AC.
DA-2
25.10 AC.
WELL SITE
DA-5
11.47 AC.
DA-6
10.9 AC.
DA-1
2.6 AC.
BMP

STONEHOUSE COMMERCE PARK

MASTER DRAINAGE PLAN

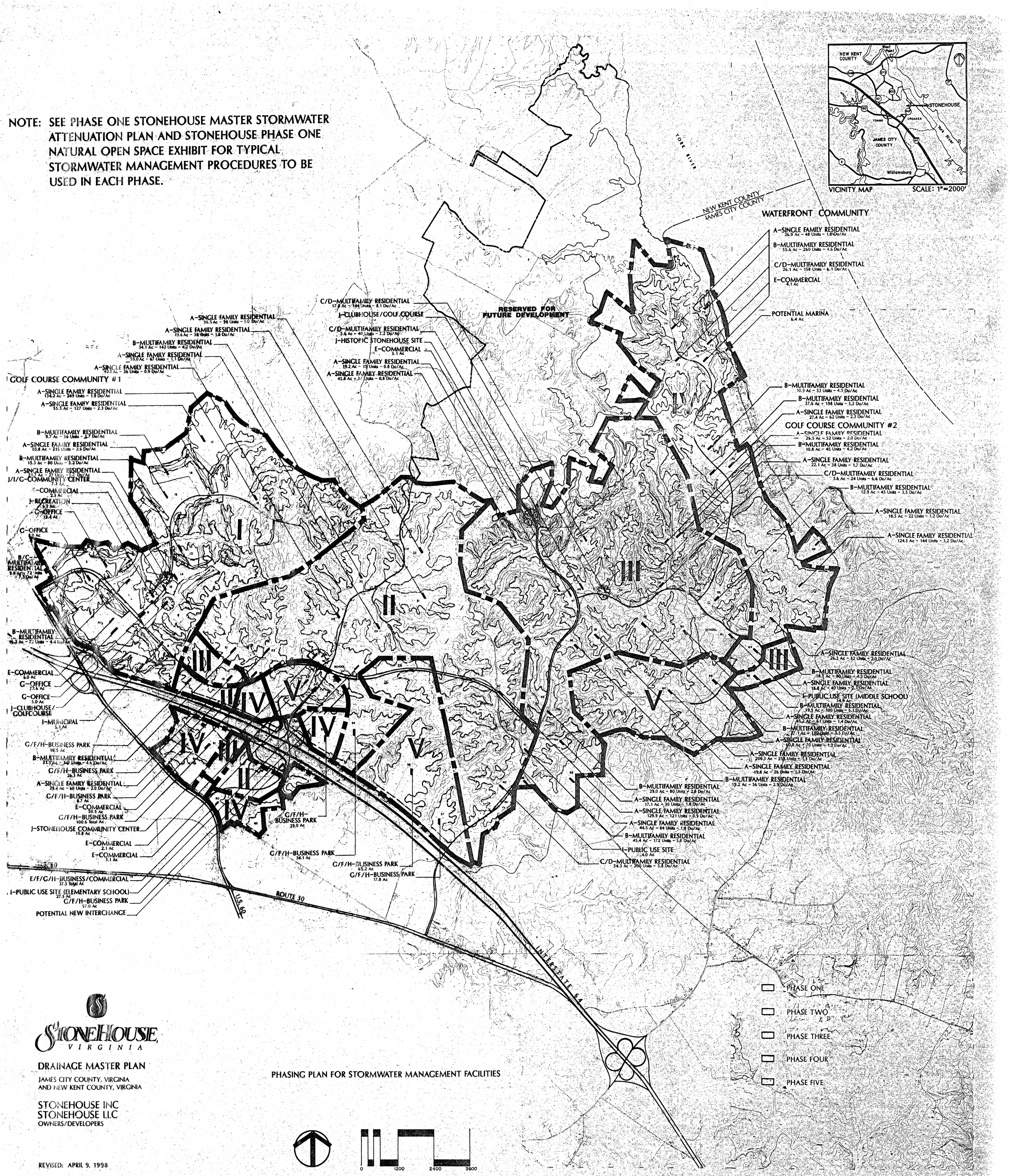


GRAPHIC SCALE: 1"=200'

0' 200' 400' 800'

WC035_STONEHOUSE_COMMERCE_PK - 014

NOTE: SEE PHASE ONE STONEHOUSE MASTER STORMWATER ATTENUATION PLAN AND STONEHOUSE PHASE ONE NATURAL OPEN SPACE EXHIBIT FOR TYPICAL STORMWATER MANAGEMENT PROCEDURES TO BE USED IN EACH PHASE.



STONEHOUSE, VIRGINIA

DRAINAGE MASTER PLAN

JAMES CITY COUNTY, VIRGINIA
AND NEW KENT COUNTY, VIRGINIA

STONEHOUSE INC
STONEHOUSE LLC
OWNERS/DEVELOPERS

REVISED: APRIL 9, 1998

PHASING PLAN FOR STORMWATER MANAGEMENT FACILITIES

WC035_STONEHOUSE_COMMERCE_PK - 015

SUMMARY OF WETLANDS AND WATERS IMPACTED

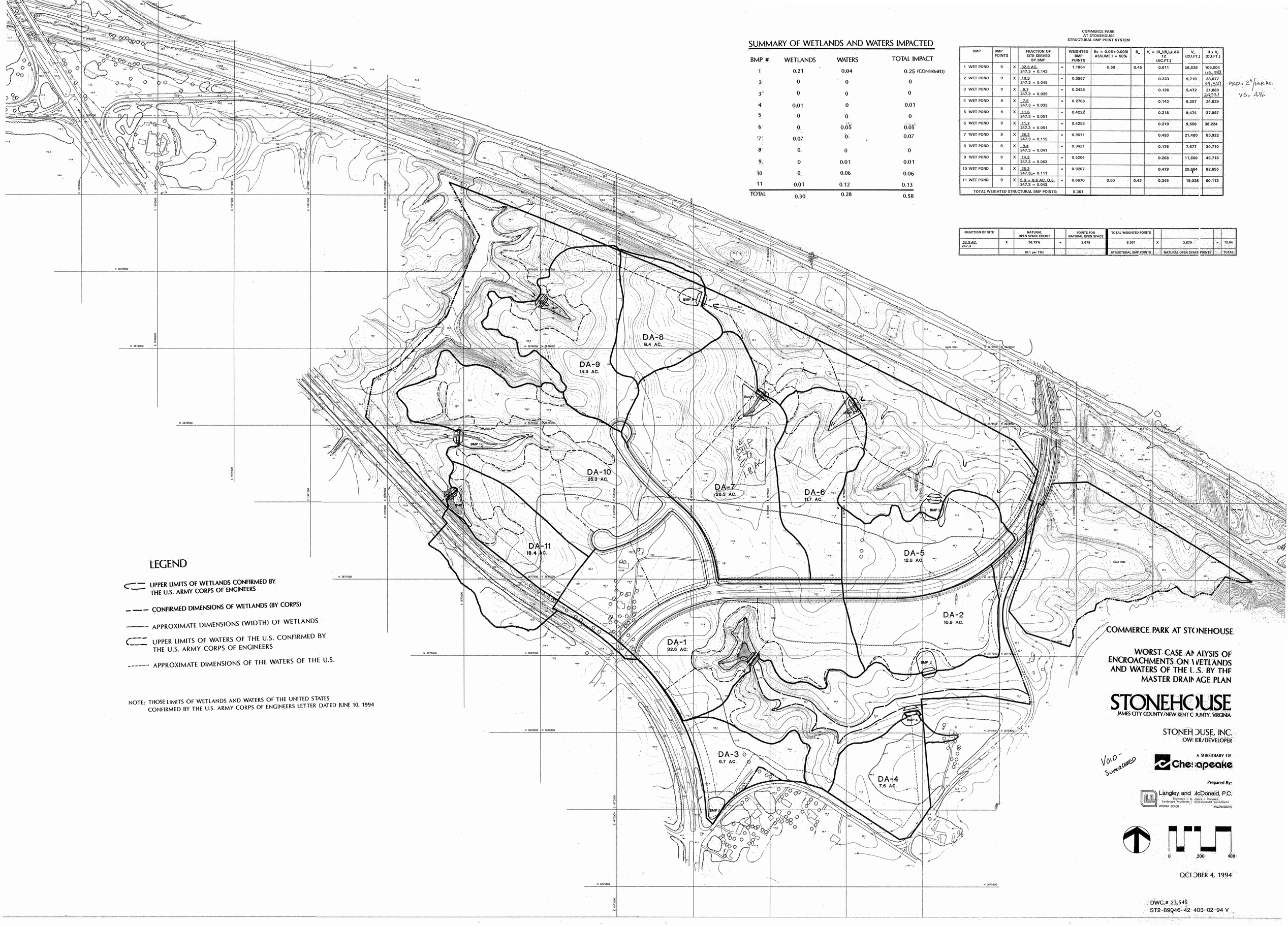
BMP #	WETLANDS	WATERS	TOTAL IMPACT
1	0.21	0.04	0.25 (CONFIRMED)
2	0	0	0
3	0	0	0
4	0.01	0	0.01
5	0	0	0
6	0	0.05	0.05
7	0.07	0	0.07
8	0	0	0
9	0	0.01	0.01
10	0	0.06	0.06
11	0.01	0.12	0.13
TOTAL	0.30	0.28	0.58

COMMERCE PARK
AT STONEHOUSE
STRUCTURAL BMP POINT SYSTEM

BMP	BMP POINTS		FRACTION OF SITE SERVED BY BMP		WEIGHTED BMP POINTS	Rv = 0.05+0.009I ASSUME I = 50%	R_w	V_r = (Rv)(R)x AC. 12 (AC.FT.)	V_r (CU.FT.)	H x V_r (CU.FT.)
1 WET POND	9	X	32.6 AC. / 247.3 = 0.143	=	1.1864	0.50	0.45	0.611	26,626	106,504 / 118,339
2 WET POND	9	X	10.9 / 247.3 = 0.048	=	0.3967			0.223	9,719	38,877 / 59,521
3 WET POND	9	X	6.7 / 247.3 = 0.029	=	0.2438			0.126	5,472	21,889 / 24321
4 WET POND	9	X	7.6 / 247.3 = 0.033	=	0.2766			0.143	6,207	24,829
5 WET POND	9	X	11.6 / 247.3 = 0.051	=	0.4222			0.218	9,474	37,897
6 WET POND	9	X	11.7 / 247.3 = 0.051	=	0.4258			0.219	9,556	38,224
7 WET POND	9	X	26.3 / 247.3 = 0.115	=	0.9571			0.493	21,480	85,922
8 WET POND	9	X	9.4 / 247.3 = 0.041	=	0.3421			0.176	7,677	30,710
9 WET POND	9	X	14.3 / 247.3 = 0.063	=	0.5204			0.268	11,680	46,718
10 WET POND	9	X	25.3 / 247.3 = 0.111	=	0.9207			0.479	20,664	82,655
11 WET POND	9	X	9.8 + 8.6 AC. O.S. / 247.3 = 0.043	=	0.6670	0.50	0.45	0.345	15,028	60,113
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					6.361					

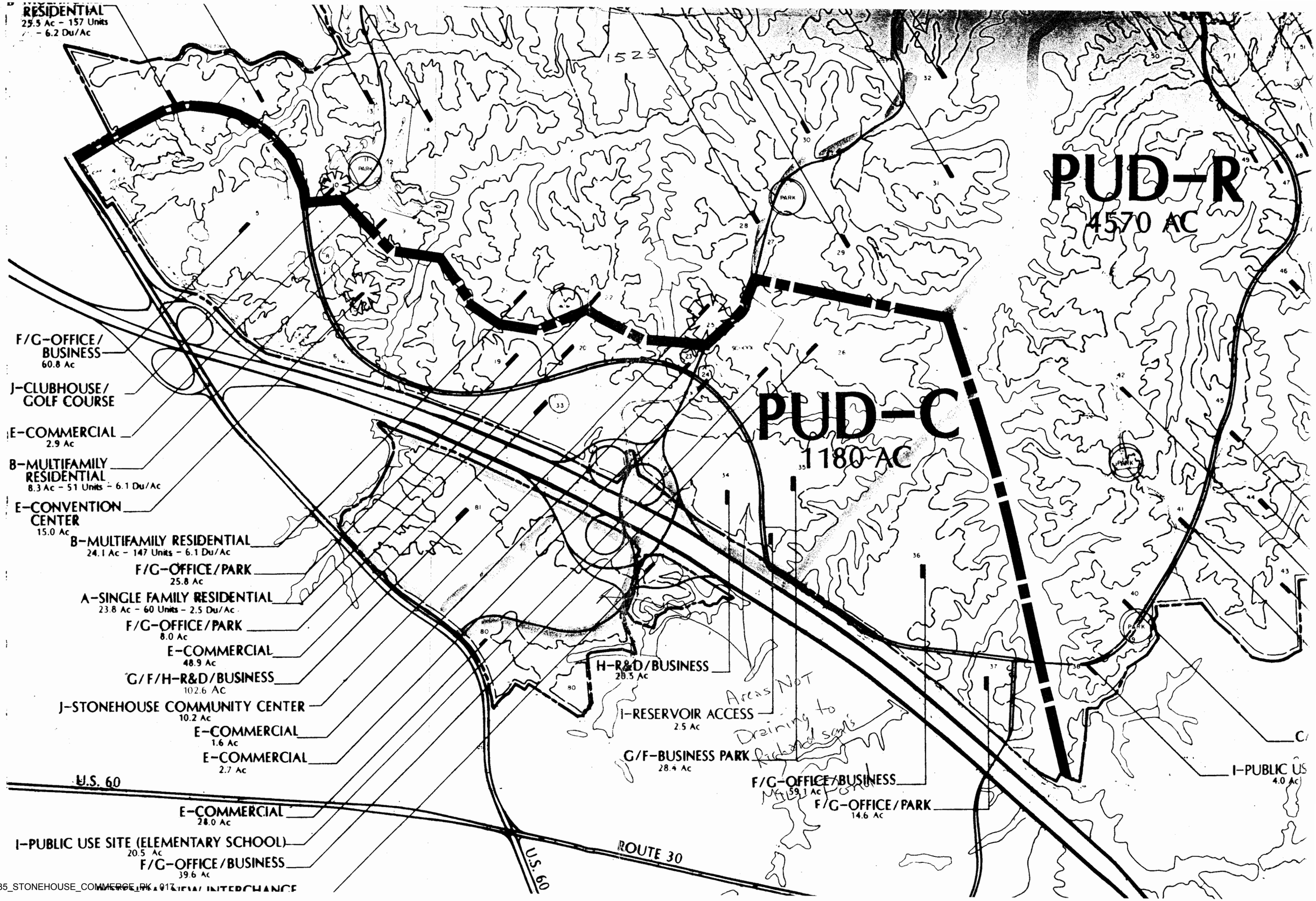
RED = 2"/imp. ac.
VS. 4½

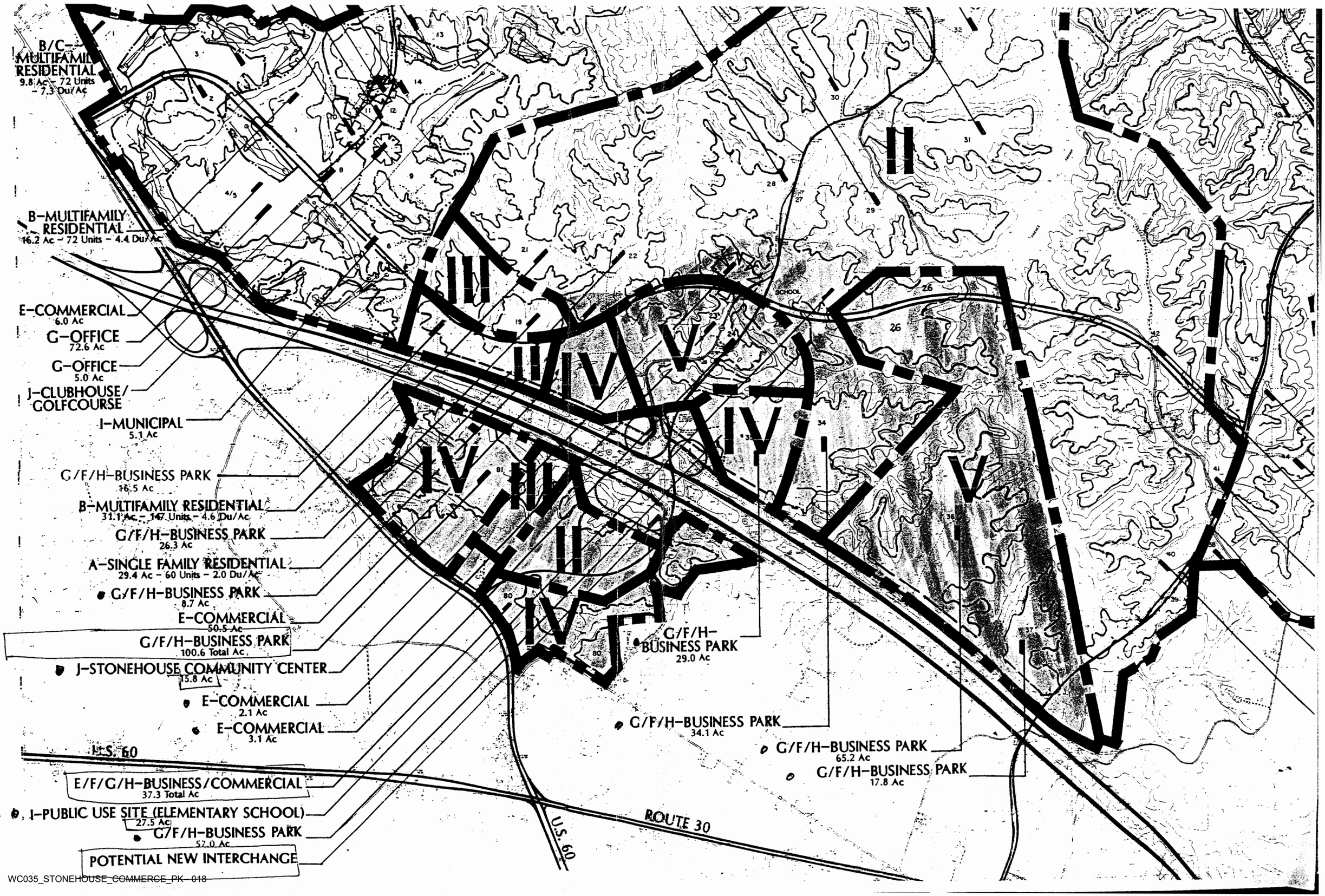
FRACTION OF SITE		NATURAL OPEN SPACE CREDIT		POINTS FOR NATURAL OPEN SPACE	TOTAL WEIGHTED POINTS					
99.9 AC. / 247.3	X	36.79%	=	3.679	6.361	X	3.679		=	10.04
		(0.1 per 1%)			STRUCTURAL BMP POINTS		NATURAL OPEN SPACE POINTS			TOTAL



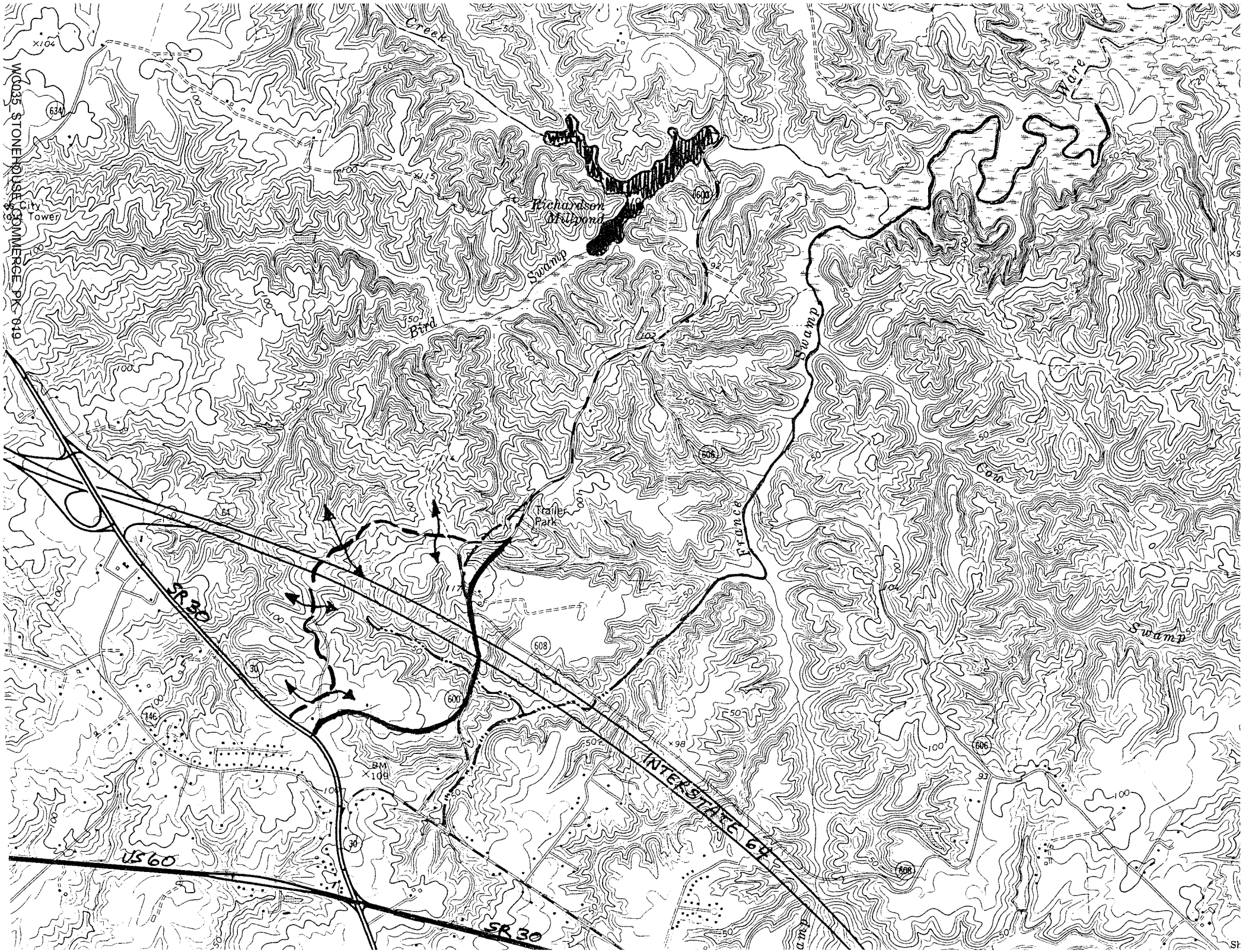
VOID - SUPERSEDED

WC035_STONEHOUSE_COMMERCE_PK - 016


RESIDENTIAL
25.5 Ac - 157 Units
- 6.2 Du/Ac
1525
PUD-R
4570 AC
PUD-C
1180 AC
F/G-OFFICE/
BUSINESS
60.8 Ac
J-CLUBHOUSE/
GOLF COURSE
E-COMMERCIAL
2.9 Ac
B-MULTIFAMILY
RESIDENTIAL
8.3 Ac - 51 Units - 6.1 Du/Ac
E-CONVENTION
CENTER
15.0 Ac
B-MULTIFAMILY RESIDENTIAL
24.1 Ac - 147 Units - 6.1 Du/Ac
F/G-OFFICE/PARK
25.8 Ac
A-SINGLE FAMILY RESIDENTIAL
23.8 Ac - 60 Units - 2.5 Du/Ac
F/G-OFFICE/PARK
8.0 Ac
E-COMMERCIAL
48.9 Ac
G/F/H-R&D/BUSINESS
102.6 Ac
J-STONEHOUSE COMMUNITY CENTER
10.2 Ac
E-COMMERCIAL
1.6 Ac
E-COMMERCIAL
2.7 Ac
U.S. 60
E-COMMERCIAL
28.0 Ac
I-PUBLIC USE SITE (ELEMENTARY SCHOOL)
20.5 Ac
F/G-OFFICE/BUSINESS
39.6 Ac
H-R&D/BUSINESS
20.5 Ac
I-RESERVOIR ACCESS
2.5 Ac
Areas NOT
Draining to
Richland Creek
G/F-BUSINESS PARK
28.4 Ac
F/G-OFFICE/BUSINESS
59.1 Ac
F/G-OFFICE/PARK
14.6 Ac
I-PUBLIC US
4.0 Ac
U.S. 60
ROUTE 30
PARK



WC035_STONEHOUSE_COMMERCE_PK-018



WC0035_STONEHOUSE_COMMERCE_PK_019

Development Criteria

Stonehouse Commerce Park

STONEHOUSE

James City County, Virginia

SEE HIGHLIGHTED MATERIAL

Stonehouse Inc.
a Subsidiary of
Chesapeake

Development Criteria

Stonehouse Commerce Park

STONEHOUSE

James City County, Virginia

Prepared By

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Stonehouse Inc.
a Subsidiary of

Chesapeake

The development plans for Stonehouse Commerce Park shall be implemented to provide a continuous attractive setting for light industrial and warehouse uses. In order to preserve the integrity of the Stonehouse Commerce Park and to guarantee the consistent quality over time, all development within the Park shall be approved by a Design Review Committee. It shall be the purpose of these Development Criteria and the Design Review Committee to oversee the review of all proposed development and construction, either new or renovations and additions, in order to ensure that such activity is in compliance with the standards and guidelines established by Stonehouse, Inc., in this document and in supplemental documents that may be developed in the future, and to consider variations to the guidelines for design defined in this document.

DESIGN REVIEW PROCEDURES

Pre-design Conference

Prior to the commencement of design, any party wishing to develop, construct, or improve any property within the Stonehouse community shall request a pre-design conference in order to become fully aware of the provisions of the design criteria and requirements of the community. Administrative personnel of the Stonehouse community and members of the Design Review Committee shall periodically be available for discussion with the developer during the design stage of development.

Preliminary Design Approval

Preliminary designs shall be submitted to the Design Review Committee for approval prior to proceeding with final design. Four copies of all plans shall be provided. Preliminary submittals shall include, at a minimum, the following elements:

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1. Site plan indicating locations of site access, structures, walks, parking, loading areas, and refuse collection areas, and major mechanical elements. Plan shall be at a minimum scale of 1" = 40' on a topographic plan showing one foot contours. General grading concept shall be indicated. Buildable site area, 15% slope, and proposed total impervious area shall be indicated.

2. Preliminary building elevations, indicating general dimensions and proposed material types.

3. Preliminary planting and irrigation plan indicating locations of plants by general type and areas of proposed lawn, and clearly delineating areas to be irrigated. Trees proposed for preservation should be indicated by a tree edge, or, if surrounded by development, by species and size. Proposed tree protection fencing shall be shown.

The Design Review Committee will comment upon the preliminary design in order to provide guidance before proceeding to final design documents.

Construction Plan Approval

Following the preliminary design stage, the developer shall submit an application and all required drawings, specifications, and supporting documents necessary to fully represent the scope and details of the proposed improvements.

At a minimum, the following documents shall be provided. Four copies of all plans shall be provided. One copy will be returned with comments.

1. Site Plan indicating the full extent of improvements proposed, to a level of detail suitable for approval by James City County. The locations of all paving, the nature of the paving, the location and finish floor elevation of

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all structures, and the locations of all utilities shall be clearly indicated. The following elements shall as a minimum be shown:

- Property lines and easement;
- Lighting;
- Signs;
- Dimensions of all setbacks;
- Grading with one foot contours;
- Loading areas;
- Refuse collection areas;
- Mechanical equipment;
- Site furniture and amenities.

2. Planting and Irrigation Plan to a level of detail suitable for full installation of all proposed elements. The following elements shall be indicated:

- Property lines and easements;
- Existing and proposed utilities and site lighting;
- Proposed structures and paving;
- Proposed contours;
- Location of tree preservation areas and protective fencing;
- Existing trees to remain, individually by species and size if surrounded by development, or as a tree edge if retained in a mass;
- Proposed plantings clearly coded to a plant list;
- Plant list indicating scientific name, common name, height, width and caliper as appropriate, and root condition;
- Areas to be sodded and/or seeded with description of seed or sod mixture;
- Planting specification notes;
- Areas to be irrigated with source of water, location of controller and equipment, and irrigation specification notes.

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3. Building drawings a minimum scale of 1/8" = 1'-0" as well as material and color samples shall be submitted. The following information shall be provided:

   - Floor plans or building footprint;
   - Elevations, in color and/or with color samples;
   - Exterior material specifications and samples;
   - Location and size of all exterior mechanical and electrical equipment, roof-mounted or ground-mounted.

4. Site Furnishing descriptions, as follows:

   - For pre-manufactured items, a catalogue cut illustrating the proposed furnishing along with specifications regarding size, materials, and color;
   - For custom designs, a set of shop drawings or detail drawings to indicate size, materials, color and any other information to fully describe the construction and appearance of the furnishing;
   - Location on the site plan.

5. Sign plans indicating site or building location, size, materials, color, lighting, and all written and pictorial information shall be provided.

6. Lighting plans shall be provided indicating the following information:

   - Locations of all fixtures, including those attached to the building and accent lights for planting, buildings, or site features;
   - Lighting schedule showing manufacturer's name, model number, lamp type, wattage, and fixture mounting method and hardware, color, pole style and finish;
   - Photometric information giving light distribution pattern and illumination levels;

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- Photographs and/or catalog cuts illustrating the fixture, hardware, post, and any other item that will be visible.

Design Review Committee meetings will be held on a regular basis. Notice of the Design Review Committee meetings and agenda will be published in such a way as to ensure that all persons concerned will have adequate knowledge of the date, time, place and agenda of any meeting. Applications for review shall be made a minimum of two weeks prior to a scheduled meeting, and written comments will be mailed to the applicant within one week following a scheduled meeting. The Committee will be available for oral discussion and progress comments on shorter notice if necessary to expedite the preparation of development plans. Only complete applications will be considered for final approval. Applicants are encouraged to present their plans and to be available to answer questions regarding the applications.

No construction or site disturbance shall take place without the written approval of the Design Review Committee.

The approval of the Design Review Committee in no way substitutes for any review of development plans required by county or other governmental agencies. The developer is responsible for complying with any applicable local, state or federal ordinances or standards.

The Design Review Committee may, at its discretion, approve variances to the standards set herein if such variances are planned to increase the adaptability of development within the Stonehouse community to the natural conditions of the site or to result in a commercial park or residential area with greater design quality than would result from strict adherence to the standards set herein.

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SITE COVERAGE AND SETBACK CRITERIA

All development within the Commerce Park is required to conform to the following site coverage and minimum setback criteria. Building setbacks shall apply to primary buildings, building extensions, and accessory site structures. Variance to setback requirements for accessory landscape structures or to other standards set herein may be allowed upon application to the Design Review Committee.

- Stonehouse has provided stormwater management facilities (BMP's) for overall Commerce Park development. For accommodation in these BMP's the maximum building and paved area coverage on the buildable area of any individual site shall be 65% unless additional coverage is allowed by the Design Review Committee. Additional coverage may be allowed if on-site stormwater management facilities in addition to those required or constructed by Stonehouse are provided.

- The following minimum building setback restrictions shall apply. Variations to these setbacks may be required depending upon specific site conditions and previous development of adjacent properties.

  1. from right-of-way line of Lagrange Parkway, 75 feet;
  2. from right-of-way line of any other public street, 50 feet;
  3. from any other property line, community perimeter buffer greenspace, or lake edge easement, 10 feet.

- The following parking lot setback restrictions shall apply:

  from buildings, 15 feet.

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2. from right-of-way line of Lagrange Parkway, 40 feet;

JCC 50'

3. from right-of-way line of any other public street, 20 feet;

4. from community perimeter buffer greenspace, or lake edge easements, 10 feet;

5. from any other property line, 15 feet. JCC 15

Waivers to the setback requirements for individual buildings within a business or retail complex may be allowed by the Design Review Committee in order to permit the sale of individual units of a multiple-structure commercial development.

SITE ACCESS

Site entrances shall be located at the median breaks of Lagrange Parkway. Additional right in/right out entrances may be permitted upon the approval of the Design Review Committee. Site entrances on other roadways shall be located a minimum of 400 feet from Lagrange Parkway and a minimum of 200 feet apart. Only two entrances shall be allowed from each roadway fronting a site. Entrance criteria may be varied upon approval of Design Review Committee.

PARKING, LOADING AND OUTDOOR STORAGE

Parking shall be provided to meet the requirements of James City County ordinances. Parking areas shall be screened per the provisions of the Planting Section of this document.

Truck loading areas located within interior building courtyards are encouraged. All loading areas shall be located at the rear or side of the main building and shall

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not be visible from the building front or adjacent streets. Loading areas facing adjacent sites shall be screened as per the provisions of the Planting Section of this document.

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Outdoor storage areas shall be located to not be visible from the building front or adjacent streets. Outdoor storage areas visible from adjacent sites shall be screened as per the provisions of the Planting Section of this document.

Fencing for loading areas and outdoor storage shall be provided per the Site Furnishings section of this document.

ARCHITECTURAL CRITERIA

Although a variety of architectural treatments may be allowed within the Commerce Park, all buildings shall be constructed to present an attractive contemporary appearance. All materials and elevations shall be reviewed and approved by the Design Review Committee for consistency with the character of the park.

All structures shall be designed and constructed of high quality, durable materials which provide a permanent finish with a high quality appearance. Acceptable finishes include brick, stone, glass, precast concrete, high-quality unit masonry, and high-quality metal finishes. Bright color and bright white finishes shall be avoided except as accent elements. Finishes in loading and storage areas of buildings or the site that are screened from adjacent land uses may include painted unit masonry and other types of metal finishes; the lack of visibility from adjacent sites and roadways must be clearly demonstrated to the Design Review Committee for approval of these materials.

Roof mounted equipment shall be architecturally screened so as not to be visible from the roadway or adjacent sites.

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SITE FURNISHINGS

In order to achieve a consistent and high standard of quality for each property within the Stonehouse community, all site furnishings visible from roadways or adjacent properties shall be submitted for the approval of the Design Review Committee.

The Stonehouse Commerce Park shall be provided with a consistent contemporary architectural theme, and site furnishings shall be selected to be consistent with the architectural character. Consistency with the site architecture shall be strictly adhered to in the choice of materials, color, style and quality.

Site furnishings regulated by these criteria include, but shall not be limited to, the following: fences and walls, walkway and plaza paving, benches and chairs, bicycle racks, picnic shelters, trash receptacles, planters, ornamental statuary and fountains.

All site furniture shall be constructed of high-quality materials with durable finishes and shall be installed per manufacturer's directions or per design standards to provide a safe, low-maintenance installation. All timber construction shall be of rot-resistant species or pressure-treated lumber. All metal shall be provided with a corrosion-resistant finish.

Fences and walls shall be constructed of the same material as the building on the site or of a material compatible with it. No metal fencing except for high-quality decorative steel or wrought iron and no stockade style wooden fencing shall be allowed except when located at the rear of the building with no visibility from adjacent properties, roadways, or community pathways. Fences used for screening shall meet the standards set forth in the Planting section of this document.

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SITE LIGHTING

The Stonehouse Commerce Park shall have site lighting as necessary to provide for the general illumination and attractiveness of each property. All site lighting shall be designed so that lighting is directed away from adjacent properties, streets, and roads. Accent lighting of building facades, architectural features, signs, and landscaping, is encouraged; however, site lighting shall not be visible from adjacent residential areas. Lighting shall be designed and installed so as to not encumber or interfere with the vision or concentration and safety of motorists and pedestrians.

Site lighting on any individual site shall be consistent in height, lighting intensity, and fixture, pole and base style, materials, and color.

Security lighting attached to buildings shall be allowed only in service and loading areas not visible from site perimeters.

The following lighting guidelines shall apply:

- All electrical wiring for site lighting shall be underground.

- The locations of all electrical transformers shall be approved by the Design Review Committee. Transformers shall be located in inconspicuous areas away from site and building entrances and screened as per the standards in the Community Planting section of this document.

- Unless otherwise directed by County codes or Ordinances, the following height limitations shall be adhered to. Variance to this height standard may be allowed upon application to the Design Review Committee.

  1. Pole mounted lights on streets and in parking areas shall not exceed a mounting height of 24 feet.

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2. Pole mounted lights in pedestrian areas shall not exceed a mounting height of 12 feet.

3. Light bollards shall not exceed an overall height of 42 inches.

- All lighting in parking areas shall be located in landscaped islands, along the centerline between parking bays, or along the perimeters of the parking area. All light poles in paved areas, or within 2 feet of the edge of parking spaces, shall be mounted on concrete bases.

Accent lighting or security lighting varying from the standards set herein may be allowed upon application to, and at the discretion of, the Design Review Committee.

SIGNS

Individual sites with the Stonehouse Commerce Park may have identification signs along the site frontage. The identification may be one freestanding sign located adjacent to the drive entrance or within the driveway island. The sign shall conform to the following guidelines:

- Freestanding signs shall not exceed 32 square feet per face and the top of the sign structure shall not be greater than 8 feet above the grade of the adjacent roadway.

JCC 32' & 15'

- The top of a sign structure may exceed the above standards only in cases where the natural topography of the site provides extensive grade difference from the adjacent roadway or extensive berms are an integral part of the site development scheme. In such cases the variation to sign height must be submitted for approval by the Design Review Committee.

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- Signs shall be set back a minimum of 8 feet from the adjacent right-of-way and shall be so located as not to interfere with intersection visibility. JCC 5'

- The area around the sign shall be landscaped to blend with adjacent plant materials. Lawn is acceptable as a ground cover around the sign. If shrubs are provided they must be species that do not obscure the sign at mature height.

- Signs may serve single or multiple tenants.

Variations to the sign standards may be allowed upon application to the Design Review Committee. No temporary or permanent signs other than that described in this document shall be allowed without the express consent of the Design Review Committee.

Buildings may be identified by signs on the building. The size, color and location of such signs shall be approved by the Design Review Committee.

PLANTING

The overriding design theme of Stonehouse Commerce Park shall be to provide maintained lawn area and plantings in open areas and to maintain the existing wooded site character to the maximum extent possible where forest exists, planning and locating signs, walls, fences, other landscape elements and new plantings in such a manner as to blend with the existing surroundings. Landscaping around the individual buildings shall be planned to provide transition between the buildings and the surrounding natural vegetated areas of the site and community.

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Planting for a specific site or area shall be designed to coordinate with plantings on adjacent sites. Planting locations and types shall be designed to provide a continuum from one site to another.

Variance from requirements and standards for planting will be considered to allow for individual design quality based upon the specific characteristics of each site and to allow for the retention of significant and high-quality stands of trees. Any such variance shall be allowed only upon application to and at the express discretion of the Design Review Committee.

All development in the Stonehouse community shall take place with strict application of the provisions of this development criteria for the protection and preservation of existing vegetation. The standards for tree protection and post-construction maintenance are set forth in the Tree Protection Section of this document.

All plants shall conform to the standards of the American Association of Nurserymen. Use of native plants and/or other varieties and plants that fit the character of the region is encouraged. Invasive plants shall not be allowed. Required plants shall be provided in the following minimum sizes:

- Shade Trees: 2-2 1/2" caliper;
- Evergreen Trees: 6'-8' height;
- Shrubs: 2'-3' height or 18-24" spread, as appropriate for species;
- Groundcovers: 18"-24" spread, or 1 gallon pots.

RETENTION AREAS

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Dry retention areas shall be planted with a combination of turf grass and/or other grasses, perennial plant materials and shrubs. The plant selection shall be appropriate to the moisture conditions of the zones of the retention area. Plantings along the riparian fringe and adjacent upland shall be provided to blend the retention area with the surrounding vegetation and terrain. Existing vegetation shall be retained at the perimeter of the retention area whenever possible. When trees cannot be retained, they shall be replaced with a mixture of major and minor trees to present a naturalized appearance. Most plant species for retention areas shall be selected from regionally native plant materials. Plant species that are prone to winterkill or are prone to wind damage shall not be used. Care shall be taken to locate plant materials appropriately to their need for protection from direct sunlight and to their ability to tolerate the moisture levels of zones of the retention areas.

Wet retention areas and other lake edges shall have planted slopes or vertical retention surfaces appropriate to surrounding architecture and landforms. Existing trees shall be retained along the lake edge whenever possible. A lake edge planting easement shall be located along the entire lake perimeter for a distance 25 feet back from the normal high water elevation. This planting zone shall have a minimum of the following plantings for each 500 feet of lake edge:

- Fifteen major or minor trees with a maximum distance of 150 feet between trees.

- Retained or planted mass shrub plantings of 1,000 square feet. Shrub plantings shall include a minimum 20 percent evergreen plants and may include up to 40 percent ornamental grasses, perennials or wildflowers. The minimum size of any planting bed shall be 250 square feet, with a minimum width of 6 feet.

- Trees shall not be located upon the pond embankments of wet or dry retention areas. Such created embankments shall be planted with turf or

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other grasses or groundcovers. Plants shall be selected for their ability to hold soil and prevent erosion.

SITE ENTRANCES

Median islands, if provided, shall be planted with a solid covering of plant material at maturity, of which a minimum of 65 percent shall be groundcovers, shrubs and trees. A minimum of 50 percent of these plants shall be evergreen. The remaining 35 percent may be sod, perennials, or annual accent plants.

Plantings on the sides of the entrance shall be planned to blend with the adjacent vegetation.

PARKING AREA AND BUILDING GREENSPACE PLANTING

Interior Greenspace

Consolidation of required parking lot greenspace and plantings into large islands and in rows between parking bays is encouraged in order to allow space for the development of tree root systems.

Screening

No parking area shall be located within 50 feet of any public street right-of-way, or collector pathway without the provision of a screening barrier between the street or path and areas of the parking lot planned for storage of vehicles or loading. The screening barrier shall be located within 25 feet of the parking lot edge and shall consist of plants, walls, or earthen berms, or a combination of these. An irregular, naturalized appearance is encouraged in the provision of screening in

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order to blend the screening into the adjacent vegetation. The screen shall meet the following requirements:

- The screen must have an ultimate density to cover 80 percent of the visual area up to 3 feet 6 inches in height at maturity, and a density of 50 percent visual coverage of this same area at the time of installation. The required height of the visual screen shall be measured from the elevation of the adjacent street, collector, pathway, or adjacent screened site. No more than 6 feet continuous of screened area may be void of screening materials.

- In addition to shrubs, fences, walls and berming used to achieve the screening, the screened area shall have a minimum of four understory trees for each 100 linear feet of required screened area. These trees shall be located on the street side of the screening element, or, in the case of screening shrubs, may be located in the shrub beds. The maximum spacing between required trees shall be 60 feet.

- When shrubs are used to achieve the screening, a minimum of 50 shrubs is required for each 100 linear feet of required screened area. The maximum spacing between any two plants shall be 9 feet. The minimum length of any shrub bed shall be 20 feet. A maximum of 25 percent of the required shrubs may be deciduous.

- Fences and walls shall be of a material type compatible with the architecture of the site and shall meet the design guidelines provided in the Site Furnishing Section of this document. Fences and walls shall have a height of 3 feet 6 inches. Shrubs or vines shall be located along a minimum of 25 percent of the length of any fence or wall section greater than 100 feet in length. If shrubs or vines are required, a maximum length of 50 feet of fence or wall may be provided without the provision of shrubs or vines in front of the wall. The minimum length of any plant bed shall be 10 feet.

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- Earthen berms and changes of grade may be utilized to achieve the required screening. If berms are constructed, they shall have a maximum side slope of 4:1 and a minimum crown of 3 feet and shall be designed to vary in height along the length of the screened area. A minimum of 25 percent of the length of the berm shall be planted with shrubs or groundcovers. Plants shall be located along the sides or base of the berm and not on the crown. A maximum of 40 percent of the shrubs may be deciduous.

Building Planting

Building planting required by the County Ordinance shall be concentrated in the areas at the building front and sides visible from the street and adjacent properties. Plants shall be massed in concentrated areas unless otherwise approved by the Design Review Committee.

UTILITY, REFUSE AREA AND STORAGE AREA SCREENING

Utilities and other outdoor mechanical elements that are visible from adjacent sites, roadways or community pathways shall be screened by a fence, wall, shrubs, or a combination of these. Fences and walls shall be compatible in materials and style with the architecture of the adjacent buildings. The combination of screening materials shall form a continuous visual screen with a density of 75 percent at maturity for the full height and width of the element being screened. Shrubs must be evergreen, a minimum of 24 inches in height at time of planting, and planted a maximum of 4 feet on center.

Refuse storage areas and outdoor storage areas shall be screened by a fence, wall, shrubs or a combination of these. Fences and walls shall be compatible in materials and style with the architecture of the adjacent buildings. The combination of screening materials shall form a continuous visual screen with a density of 75 percent at maturity for the full height and width of the element being screened.

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Shrubs without a fence or wall must be evergreen, a minimum of 24 inches in height at the time of planting and planted at a maximum of 4 feet on center in a double staggered row.

TREE PROTECTION

It is the intent that the entire Stonehouse community remain a part of the natural landscape. Trees and, as appropriate, understory vegetation are to be retained and protected during the development and construction process to the maximum extent possible. The following guidelines shall be adhered to during construction of all facilities in the community.

- A priority shall be placed on the retention of trees in groups in order to maintain their preconstruction environment as much as possible during and following construction.

- As a part of the site development plans, all areas of the site to be retained in natural vegetation shall be clearly marked as "tree preservation areas".

- A preconstruction conference shall be required prior to any site disturbance. This conference shall be attended by the general contractor, site contractor, engineer, architect, landscape architect, and a Stonehouse representative. The purpose of the conference shall be to review standards for tree protection during construction. Tree preservation areas of the site shall be identified and guidelines for their protection shall be reviewed.

- All areas of the site established as "tree preservation areas" shall be clearly marked by means of a continuous barricade at the greater of either 10 feet from the tree trunk, at 1 foot for each 1 inch of trunk diameter, or beyond the dripline. This barricade shall be in place prior to any construction equipment being brought on the site. The barricade shall remain in place

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and in good condition for the duration of the construction activity and shall be the last item removed from the site during final site cleanup at the completion of the project.

The barricade shall be constructed of uprights consisting of metal posts driven a minimum of 30 inches into the ground and extending a minimum of 4 feet above grade. Posts shall be spaced a maximum of 8 feet on center and shall be joined continuously by orange plastic mesh fencing. Signs shall be attached to the barricade at a maximum of twenty feet on center stating "tree preservation area".

- Sites are to be identified away from tree preservation areas for storage of building supplies, for employee and equipment parking, and for washout areas. These sites are to be identified at the preconstruction conference. No waste material from contractors or storage of supplies will be allowed except in this area of the site.

- When roots of trees to be saved extend outside the tree protection area and must be damaged by construction, they are to be sawcut prior to the construction activity.

POST-CONSTRUCTION TREE MAINTENANCE

In addition to protecting existing vegetation during construction, trees on the perimeter of developed areas and within developed areas require post-construction care to compensate for changes to their environment.

- Areas of trees that are saved shall be mulched with a 4 inch layer of shredded bark except where shrub and groundcover plants provide a solid mass. On the perimeters of undisturbed vegetated areas, the tree areas shall be mulched for the first 15 feet of depth from the edge of the disturbed

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area. Final grading shall establish positive drainage to most closely approximate pre-construction drainage patterns.

- Any trees damaged during construction shall be pruned and treated by a qualified tree maintenance contractor. Trees suffering from stress and root loss shall be pruned of dead, dying or interfering and objectionable branches.

- All retained trees outside of the reservoir buffer area with construction activity within 20 feet of their trunks shall receive a post-construction application of a slow release nitrogen fertilizer injected into the root zone of each tree.

- No tree credit will be provided for retained trees to meet planting and greenspace requirements as defined in this document or in County ordinances if there is any encroachment into the protected area defined by the fencing other than encroachment for pedestrian paths specifically allowed by the Design Review Committee. Encroachment includes any change of grade, construction of impervious surfaces, storage of equipment, material or fill, trenching or excavation, or compaction by any parking or circulation of vehicles or equipment.

PLANT STANDARDS

Trees, shrubs, and groundcovers required to meet the provisions for landscape development set forth in this document are to meet the following standards.

- Trees located in parking lots or within 10 feet of pedestrian walks or bicycle pathways shall be branched at a minimum height of 7 feet at time of installation. Existing retained trees in these areas shall be pruned to this height.

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- Required shrubs and groundcover plants may be a variety of evergreen and deciduous species with varying mature heights. Plants used to fulfill landscaping requirements shall be suitable for their intended use in their mature form.

- The use of a variety of plants is encouraged.

- Variety in plant spacing except as otherwise designated within this document is encouraged. Existing or planted trees placed closer than 8 feet on center shall, however, be counted as one tree for purposes of fulfilling tree requirements.

IRRIGATION

Irrigation systems shall be provided at the site entrance and in the greenspace areas in front of the building and/or parking areas that are visible from the road. Areas to be irrigated shall be clearly indicated on the planting plan for approval by the Design Review Committee. Irrigation systems shall meet the following guidelines:

- All irrigation systems shall be commercial grade equipment and piping. Systems shall be provided with soil moisture sensors and rain check gauges to prevent unnecessary water use.

- All irrigation systems shall be installed by qualified irrigation contractors. Zones shall be provided that account for the varying water needs of different plant types and species.

MAINTENANCE

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In order to guarantee the desired level of quality of the Stonehouse Commerce Park, individual site owners shall be responsible for the continued maintenance of their individual properties, except for the part of their site that is located in a reservoir buffer easement or landscape easement, if any, which shall be maintained by the applicable property owners' association. All properties shall be maintained at all times in a clean, attractive and safe condition and all vegetated areas shall be maintained in a condition appropriate to their design.

Areas of natural vegetation shall be left to develop in their natural state except for the removal of dead or diseased trees, invasive or poisonous plants, or of other plants that present a danger to community residents or vehicles. Plants may be thinned in order to provide enhanced sight lines or to encourage the development of other desirable vegetation.

Construction Phase Maintenance

The property owner is responsible for maintenance of his site during construction to provide a neat and orderly appearance. All construction debris shall be promptly removed from adjacent roadways and property frontages.

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STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

JCC PIN	CC SITE PLAN	LandMark #	PLAT ID.	DEED BK./PG.	OWNER NAME	AREA (Acres)	BLDG. AREA (square feet)	PARKING AND ROADS (square feet)	UNDEVELOPED OR OPEN SPACE (Acres)	DEDICATED UNDISTURBED NATURAL OPEN SPACE (Acres)
PARCELS DRAINING TO RICHARDSON MILL POND (Note: * Portions of Barre & Meadow View R.O.W. which also drain to RMP not included)										
1210100046	SP-46-00	11437W-11438W	SECTION C, PARCEL B	77 / 28&29	DESIGN MASTER	4.13	41245	64481	1.70	
1210100045	SP-47-99	10452W,10453W,11436W	SECTION C, PARCEL C	73 / 38&39	JOHN DEERE					
					John Deere Phase 1	74.37	292000	318000	42.58	17.79
					John Deere Phase 2	Future > > >	162000	276000		
					TOTAL :	78.50	495245	658481	44.28	17.79
PARCELS DRAINING TO FRANCE SWAMP THROUGH EXISTING 10 PT. BMP's : (WQv Capable of supporting 30+ Acres of Impervious)										
#1 1210100041	SP-11-95	11409W-11410W	SECTION A, PARCEL A-1	78 / 4&5	SOLAREX (Shell)	6.65	60000	37388	4.41	
1220100023		11409W-11410W	SECTION A, PARCEL A-2	78 / 4&5	J.C.C.I.D.A.	4.75			4.75	
1210100043	SP-7-98	11377W-11378W	SECTION B, LOT A	68 / 60&61	BARRE *	4.60	40000	35641	2.86	
1210100042	SP-96-95	5861W-5863W	SECTION A, PARCEL B	62 / 94,95,96	SOLAREX	15.00	66670	36000	12.64	
#2 1210100044	SP-16-98	11377W-11378W	SECTION B, LOT B	68 / 60&61	AVID MEDICAL	3.10	30857	45007	1.36	
640100001			SECTION B, RESIDUAL		UNDEVELOPED	7.60			2.70	4.90
			AVID OPTION PARCEL		UNDEVELOPED	2.40			2.40	
OTHER LAND DRAINING TO FRANCE SWAMP:										
			SITE 15		UNDEVELOPED	7.40			6.29	1.11
			SITE 16		UNDEVELOPED	5.70			5.70	
			OPTION LOT		UNDEVELOPED	1.00			1.00	
			SITE 18		UNDEVELOPED	3.80			3.53	0.27
			SITE 19		UNDEVELOPED	10.00			6.81	3.19
			SITE 20		UNDEVELOPED	6.20			4.80	1.40
1210100047		11437W-11438W	SECTION C,	77/28&29,73/38&39	OWNER'S ASSOC.	16.85			16.85	
			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
		RESERVED FOR INTERCHANGE				16.30			16.30	
		ROAD RIGHTS OF WAY SOUTH OF I-64			*	9.28		140306	6.06	
		AREA NORTH OF I-64 OPEN BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRACT	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22
					PERCENT IMPERVIOUS :		3.81%			

Subject _____

Computed _____ Checked _____

LANDMARK DESIGN GROUP

Project # _____

Client _____

Date _____ Sheet # _____

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants

COMMERCE PARK — 10 PT. ED POND — 2 IN/IMP ACRE

BMP #1

WET STORAGE VOLUME 138470 c.f. *

ΔV_{2Q} = 174220 c.f.

ΔV_{100Q} = 266371 c.f.

DRAINAGE AREA: 32.6 ACRES.

* CAN SUPPORT 19.1 ACRES IMPERVIOUS

BMP #2

WET STORAGE 83635 c.f. *

DRAINAGE AREA: 25.1 ACRES @ I = 50

* CAN SUPPORT 11.52 ACRES

EXISTING POND DATA

	BMP	AREA SERVED ACRES	BMP POINTS	FRACTION SERVED BY BMP		WEIGHTED BMP POINTS	Rv	Rm	V (Ac-Ft)	V (C.F.)	HxV (C.F.)
1	WET POND	32.6	9	0.201	=	1.808	0.50	0.45	0.611	26626	106504
2	WET POND	25.1	9	0.155	=	1.392	0.50	0.45	0.471	20500	82002
	R.M. POND	68.0	8	0.419	=	3.352	0.50	0.45	1.275	55539	138848
	TOTAL	125.7				6.551					
	NATURAL OPENSPACE OUTSIDE OF R.M. POND(AC)	85	10	0.344	=	3.437		Rv=0.05+1.009I, ASSUME I=50% V=(Rm)(Rv)/12*AREA H=2.5 FOR 8 POINT WET POND H=4 FOR 9 POINT WET POND			
	TOTAL BMP POINTS				=	10.0					
	AREA SERVED BY RICHARDSONS MILL (ACRES)				=	68.0					
	DEVELOPABLE AREA (ACRES) (247.3-85.0)				=	162.3					
	AREA THROUGH BMPS				=	125.7					
	TOTAL AREA OF SITE (ACRES)				=	247.3					

STONEHOUSE COMMERCE PARK

	BMP	AREA SERVED ACRES	BMP POINTS	FRACTION SERVED BY BMP		WEIGHTED BMP POINTS	Rv	Rm	V (Ac-Ft)	V (C.F.)	HxV (C.F.)
1	WET POND	32.6	9	0.201	=	1.808	0.50	0.45	0.611	26626	106504
2	WET POND	25.1	9	0.155	=	1.392	0.50	0.45	0.471	20500	82002
	R.M. POND	68.0	8	0.419	=	3.352	0.50	0.45	1.275	55539	138848
	TOTAL	125.7				6.551					
	NATURAL OPENSPACE OUTSIDE OF R.M. POND(AC)	85	10	0.344	=	3.437		Rv=0.05+1.009I, ASSUME I=50% V=(Rm)(Rv)/12*AREA H=2.5 FOR 8 POINT WET POND H=4 FOR 9 POINT WET POND			
	TOTAL BMP POINTS				=	10.0					
	AREA SERVED BY RICHARDSONS MILL (ACRES)				=	68.0					
	DEVELOPABLE AREA (ACRES) (247.3-85.0)				=	162.3					
	AREA THROUGH BMPS				=	125.7					
	TOTAL AREA OF SITE (ACRES)				=	247.3					

LAGRANGE PARKWAY

#1

		Begin	End	Length	Width ROW	Pavement Width	Turning Lanes / Cuts (s.f.)	ROW Area (Acres)	Paved Area (s.f.)	Paved Area (Acres)
La Grange Parkway EXISTING These sections are served by existing BMP"s										
	Station :	1050	2600	1550	100	58	17056	3.56	106956	2.46
Westmont Drive										
	Station :	1050	1650	600	60	29	0	0.83	17400	0.40
John Deere Road										
	Station :	1050	1600	550	60	29	0	0.76	15950	0.37
								5.14		3.22
Route 600										
	Station :	1015	1300	285	60	29	0	0.39	8265	0.19
Taper	Station :	1300	1350	50	60	20	0	0.07	1225	0.03
										0.22
Pavement Demo				**650**		**20**			**13000**	**0.30**
Prior plats dedicate 1.33 Acres for the reconstruciton of this Intersection.								0.46		-0.08
La Grange Parkway EXTENSION										
	Station :	2600	3000	400	100	85	0	0.92	34000	0.78
Taper	Station :	3000	3500	500	100	29	0	1.15	28500	0.65
	Station :	3500	4200	700	100	29	0	1.61	20300	0.47
Does not take into account increase in R.O.W. for slopes / drainage.								3.67		1.90
I-64 RO	Station :									
		4200	5400	1200	n.a.	29	0	n.a.	34800	0.80
Pvmt. / Ditch Dem		**4200**	**5400**	**1200**		**32**			**38400**	**0.88**
Construction to take place within the Limits of existing I-64 R.O.W.										-0.08
Route 608										
	Station :	1015	1050	35		27	0		945	0.02
Taper	Station :	1050	1300	250		21	0		6000	0.14
										0.16
Pavement Demo							**10875**		**10875**	**0.25**
Construction to take place within the Limits of existing I-64 R.O.W.										-0.09
	Station :	5400	6300	900	100	29	2700	2.07	28800	0.66
Taper	Station :	6300	6350	50	100	29	0	0.11	1450	0.03
	Station :	6350	7143	793	100	24	0	1.82	19032	0.44
										1.13
Pavement Demo				**2140**		**18**			**38520**	**0.88**
								4.00		0.25

DEVELOPMENT TOTALS: (Includes existing Commerce Park)

AREA SERVICED BY EXISTING 10 POINT BMP's :

Existing Stonehouse, Inc. Land dedicated to R.O.W.:	5.14	Acres
Area of Existing Paving within Commerce Park..:	3.22	Acres

AREA ASSOCIATED WITH PROPOSED CONSTRUCTION :

Area of land reserved for future I-64 Interchange :	16.3	Acres
Area of land reserved from NOS/CE tract for Rt. 600:	1.33	Acres
Area of La Grange Extension R.O.W. per above :	8.14	Acres
Other Buffers and Open Space :	21.25	Acres
Total :	47.02	
Area of Paving proposed by LaGrange extension project :	4.21	Acres
Existing pavement to be demolished :	2.31	Acres
Percent Impervious	8.95%	

0.65 (6.65 AC) ~ 188,288 SF up to

60,000
37388
97,388 SF impervi
6.5 AC ~ 289,674 SF
33.62 % impervi

STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

JCC PIN	CC SITE PLAN	LandMark #	PLAT ID.	DEED BK./PG.	OWNER NAME	AREA (Acres)	BLDG. AREA (square feet)	PARKING AND ROADS (square feet)	UNDEVELOPED OR OPEN SPACE (Acres)	DEDICATED UNDISTURBED NATURAL OPEN SPACE (Acres)
PARCELS DRAINING TO RICHARDSON MILL POND (Note: * Portions of Barre & Meadow View R.O.W. which also drain to RMP not included)										
1210100046	SP-46-00	11437W-11438W	SECTION C, PARCEL B	77 / 28&29	DESIGN MASTER	4.13	41245	64481	1.70	
1210100045	SP-47-99	10452W,10453W,11436W	SECTION C, PARCEL C	73 / 38&39	JOHN DEERE					
					John Deere Phase 1	74.37	292000	318000	42.58	17.79
					John Deere Phase 2	Future > > >	162000	276000		
					TOTAL :	78.50	495245	658481	44.28	17.79
PARCELS DRAINING TO FRANCE SWAMP THROUGH EXISTING 10 PT. BMP's : (WQv Capable of supporting 30+ Acres of Impervious)										
1210100041	SP-11-95	11409W-11410W	SECTION A, PARCEL A-1	78 / 4&5	SOLAREX (Shell)	6.65	60000	37388	4.41	
1220100023		11409W-11410W	SECTION A, PARCEL A-2	78 / 4&5	J.C.C.I.D.A.	4.75			4.75	
1210100043	SP-7-98	11377W-11378W	SECTION B, LOT A	68 / 60&61	BARRE *	4.60	40000	35641	2.86	
1210100042	SP-96-95	5861W-5863W	SECTION A, PARCEL B	62 / 94,95,96	SOLAREX	15.00	66670	36000	12.64	
1210100044	SP-16-98	11377W-11378W	SECTION B, LOT B	68 / 60&61	AVID MEDICAL	3.10	30857	45007	1.36	
640100001			SECTION B, RESIDUAL		UNDEVELOPED	7.60			2.70	4.90
			AVID OPTION PARCEL		UNDEVELOPED	2.40			2.40	
OTHER LAND DRAINING TO FRANCE SWAMP:										
			SITE 15		UNDEVELOPED	7.40			6.29	1.11
			SITE 16		UNDEVELOPED	5.70			5.70	
			OPTION LOT		UNDEVELOPED	1.00			1.00	
			SITE 18		UNDEVELOPED	3.80			3.53	0.27
			SITE 19		UNDEVELOPED	10.00			6.81	3.19
			SITE 20		UNDEVELOPED	6.20			4.80	1.40
1210100047		11437W-11438W	SECTION C,	77/28&29,73/38&39	OWNER'S ASSOC.	16.85			16.85	
			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
		RESERVED FOR INTERCHANGE				16.30			16.30	
		ROAD RIGHTS OF WAY SOUTH OF I-64			*	9.28		140306	6.06	
		AREA NORTH OF I-64 OPEN BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRACT	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22
					PERCENT IMPERVIOUS :		3.81%			

#1

#2

6.65
4.75
11.40

STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

JCC PIN	CC SITE PLAN	LandMark #	PLAT ID.	DEED BK./PG.	OWNER NAME	AREA (Acres)	BLDG. AREA (square feet)	PARKING AND ROADS (square feet)	UNDEVELOPED OR OPEN SPACE (Acres)	DEDICATED UNDISTURBED NATURAL OPEN SPACE (Acres)
PARCELS DRAINING TO RICHARDSON MILL POND (Note: * Portions of Barre & Meadow View R.O.W. which also drain to RMP not included)										
1210100046	SP-46-00	11437W-11438W	SECTION C, PARCEL B	77 / 28&29	DESIGN MASTER	4.13	41245	64481	1.70	
1210100045	SP-47-99	0452W,10453W,11436	SECTION C, PARCEL C	73 / 38&39	JOHN DEERE					
					John Deere Phase 1	74.37	292000	318000	42.58	17.79
					John Deere Phase 2	Future > > >	162000	276000		
				TOTAL TO RICHARDSON MILL POND :		78.50	495245	658481	44.28	17.79
PARCELS DRAINING TO FRANCE SWAMP THROUGH EXISTING 10 PT. BMP's : (WQv Capable of supporting 30+ Acres of Impervious)										
1210100041	SP-11-95	11409W-11410W	SECTION A, PARCEL A-1	78 / 4&5	SOLAREX (Shell)	6.65	60000	37388	4.41	
1220100023		11409W-11410W	SECTION A, PARCEL A-2	78 / 4&5	J.C.C.I.D.A.	4.75			4.75	
1210100043	SP-7-98	11377W-11378W	SECTION B, LOT A	68 / 60&61	BARRE *	4.60	40000	35641	2.86	
1210100042	SP-96-95	5861W-5863W	SECTION A, PARCEL B	62 / 94,95,96	SOLAREX	15.00	66670	36000	12.64	
1210100044	SP-16-98	11377W-11378W	SECTION B, LOT B	68 / 60&61	AVID MEDICAL	3.10	30857	45007	1.36	
640100001			SECTION B, RESIDUAL		UNDEVELOPED	7.60			2.70	4.90
			AVID OPTION PARCEL		UNDEVELOPED	2.40			2.40	
OTHER LAND DRAINING TO FRANCE SWAMP:										
			SITE 15		UNDEVELOPED	7.40			6.29	1.11
			SITE 16		UNDEVELOPED	5.70			5.70	
			OPTION LOT		UNDEVELOPED	1.00			1.00	
			SITE 18		UNDEVELOPED	3.80			3.53	0.27
			SITE 19		UNDEVELOPED	10.00			6.81	3.19
			SITE 20		UNDEVELOPED	6.20			4.80	1.40
1210100047		11437W-11438W	SECTION C,	77/28&29,73/38&39	OWNER'S ASSOC.	16.85			16.85	
			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
		RESERVED FOR INTERCHANGE				16.30			16.30	
		ROAD RIGHTS OF WAY SOUTH OF I-64			*	9.28		140306	6.06	
				SUBTOTAL COMMERCE PARK TO FRANCE SWAMP :		149.07				
		POTENTIAL AREA NORTH OF I-64 OPENED BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		PROPOSED ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRAC	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22

PERCENT IMPERVIOUS FRANCE SWAMP WATERSHED: 3.81%

Note: The area of Stonehouse, Inc. land exceeds 4,000 acres. This summary accounts for only that land which could front on the road improvments currently proposed.

TABLE TWO

Subject _____

Computed _____ Checked _____

LANDMARK DESIGN GROUP

Project # _____

Client _____

Date _____ Sheet # _____

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants

COMMERCE PARK — 10 PT. ED POND — 2"/IMP ACRE

BMP #1

WET STORAGE VOLUME 138470 c.f. *

ΔV_{2Q} = 174220 c.f.

ΔV_{100Q} = 266371 c.f.

DRAINAGE AREA: 32.6 ACRES.

* CAN SUPPORT 19.1 ACRES IMPERVIOUS.

BMP # 2

WET STORAGE 83635 c.f. *

DRAINAGE AREA: 25.1 ACRES @ I = 50

* CAN SUPPORT 11.52 ACRES

EXISTING POND DATA

LAGRANGE PARKWAY

#1

		Begin	End	Length	Width ROW	Pavement Width	Turning Lanes / Cuts (s.f.)	ROW Area (Acres)	Paved Area (s.f.)	Paved Area (Acres)
La Grange Parkway EXISTING These sections are served by existing BMP"s										
	Station :	1050	2600	1550	100	58	17056	3.56	106956	2.46
Westmont Drive										
	Station :	1050	1650	600	60	29	0	0.83	17400	0.40
John Deere Road										
	Station :	1050	1600	550	60	29	0	0.76	15950	0.37
								5.14		3.22
Route 600										
	Station :	1015	1300	285	60	29	0	0.39	8265	0.19
Taper	Station :	1300	1350	50	60	20	0	0.07	1225	0.03
										0.22
Pavement Demo				**650**		**20**			**13000**	**0.30**
Prior plats dedicate 1.33 Acres for the reconstruciton of this Intersection.								0.46		-0.08
La Grange Parkway EXTENSION										
	Station :	2600	3000	400	100	85	0	0.92	34000	0.78
Taper	Station :	3000	3500	500	100	29	0	1.15	28500	0.65
	Station :	3500	4200	700	100	29	0	1.61	20300	0.47
Does not take into account increase in R.O.W. for slopes / drainage.								3.67		1.90
I-64 RO	Station :									
		4200	5400	1200	n.a.	29	0	n.a.	34800	0.80
Pvmt / Ditch Dem		**4200**	**5400**	**1200**		**32**			**38400**	**0.88**
Construction to take place within the Limits of existing I-64 R.O.W.										-0.08
Route 608										
	Station :	1015	1050	35		27	0		945	0.02
Taper	Station :	1050	1300	250		21	0		6000	0.14
										0.16
Pavement Demo							**10875**		**10875**	**0.25**
Construction to take place within the Limits of existing I-64 R.O.W.										-0.09
	Station :	5400	6300	900	100	29	2700	2.07	28800	0.66
Taper	Station :	6300	6350	50	100	29	0	0.11	1450	0.03
	Station :	6350	7143	793	100	24	0	1.82	19032	0.44
										1.13
Pavement Demo				**2140**		**18**			**38520**	**0.88**
								4.00		0.25

DEVELOPMENT TOTALS: (Includes existing Commerce Park)

AREA SERVICED BY EXISTING 10 POINT BMP's :

Existing Stonehouse, Inc. Land dedicated to R.O.W.:	5.14	Acres
Area of Existing Paving within Commerce Park..:	3.22	Acres

AREA ASSOCIATED WITH PROPOSED CONSTRUCTION :

Area of land reserved for future I-64 Interchange :	16.3	Acres
Area of land reserved from NOS/CE tract for Rt. 600:	1.33	Acres
Area of La Grange Extension R.O.W. per above :	8.14	Acres
Other Buffers and Open Space :	21.25	Acres
Total :	47.02	
Area of Paving proposed by LaGrange extension project :	4.21	Acres
Existing pavement to be demolished :	2.31	Acres
Percent Impervious	8.95%	

REVISED MASTER PLAN WITH 25% SLOPE
LAND NOT DRAINING TO RICHARDSON'S MILL POND

1 PAR #	2 LAND USE	3 NET DV AREA	4 DENSTY DU/AC	5 # UNITS	6 SQ. FOOT X1,000	7 IMPRV RATE	8 BUFFER AREA	9 ROAD AREA	10 PATH AREA	11 WETLAND AREA	12 IMP AREA	13 NET IMP SURFAC
22	A - Single family residential	33.4	1.8	60		19%	59.0	0.0			6.9	8%
28	A - Single family residential	30.0	1.0	30		15%	22.7	0.0	0.0		4.7	9%
32B	A - Single family residential	37.1	3.0	170		26%	34.3	2.0	0.0		11.2	15%
	Subtotal A - SFR	100.5		260.0			116.0	2.0	0.0	0.0	22.8	10%
21	B - Multifamily residential	44.8	3.3	147		26%	39.2	0.0	0.0		12.0	14%
30	B - Multifamily residential	29.1	1.0	30		15%	68.8	0.0			5.1	5%
	Subtotal B - MFR	73.9		177.0			108.0	0.0	0.0	0.0	17.1	9%
23	E - Commercial	3.6	0.0	0	4	65%	0.6	2.3	0.3		3.8	56%
33	E - Commercial	83.7	0.0	0.0	300	65%	29.2	0.0	0.0		54.7	48%
81	F/G/H/ - R&D/Business	42.9	0.0	0	400	65%	33.1	0.0	0.0		28.2	37%
19	G - Office Park	9.0			90	65%	9.2	3.3	0.7		8.2	37%
20	G - Office Park	17.9	0.0	0	190	65%	2.9	5.7	1.2		15.5	56%
	Subtotal F/G/H	157.1		0.0	984.0		75.0	11.3	2.2	0.0	110.4	45%
25	J - Community Center	12.2	0.0	0		65%	6.9	0.0	0.0	0.0	8.0	42%
	Subtotal J - Rec.	12.2		0.0			6.9	0.0	0.0	0.0	8.0	42%
	Subtotal area not draining to R. M. Pond	343.7		437.0	984.0		305.9	13.3	2.2	0.0	158.3	24%
	Total area	665.1					45.9%					
	Overall Total	1273.3		1440.0	2590.0		1078.5	58.7	15.5	0.0	442.1	
	Total area in acres	2426.0										

TABLE ONE IMPERVIOUS AREA ASSESSMENT : La Grange Parkway Extension

		Begin	End	Length	Width ROW	Pavement Width	Turning Lanes / Cuts (s.f.)	ROW Area (Acres)	Paved Area (s.f.)	Paved Area (Acres)
La Grange Parkway EXISTING These sections are served by existing BMP"s										
	Station :	1050	2600	1550	100	58	17056	3.56	106956	2.46
Westmont Drive										
	Station :	1050	1650	600	60	29	0	0.83	17400	0.40
John Deere Road										
	Station :	1050	1600	550	60	29	0	0.76	15950	0.37
								5.14		3.22
La Grange Parkway Extension										
Route 600										
	Station :	1015	1300	285	60	29	0	0.39	8265	0.19
Taper	Station :	1300	1350	50	60	20	0	0.07	1225	0.03
										0.22
Pavement Demo				650		20			13000	0.30
Prior plats dedicate 1.33 Acres for the reconstruciton of this Intersection.								0.46		-0.08
La Grange Parkway to Proposed intersection of Route 600										
	Station :	2600	3000	400	100	85	0	0.92	34000	0.78
Taper	Station :	3000	3500	500	100	29	0	1.15	28500	0.65
	Station :	3500	4200	700	100	29	0	1.61	20300	0.47
Does not take into account increase in R.O.W. for slopes / drainage.								3.67		1.90
I-64 RO	Station :									
		4200	5400	1200	n.a.	29	0	n.a.	34800	0.80
Pvmt. / Ditch Demo		4200	5400	1200		32			38400	0.88
Construction to take place within the Limits of existing I-64 R.O.W.										-0.08
Route 608										
	Station :	1015	1050	35		27	0		945	0.02
Taper	Station :	1050	1300	250		21	0		6000	0.14
										0.16
Pavement Demo							10875		10875	0.25
Construction to take place within the Limits of existing I-64 R.O.W.										-0.09
La Grange / Six Mount Zion Realignment										
	Station :	5400	6300	900	100	29	2700	2.07	28800	0.66
Taper	Station :	6300	6350	50	100	29	0	0.11	1450	0.03
	Station :	6350	7143	793	100	24	0	1.82	19032	0.44
										1.13
Pavement Demo				2140		18			38520	0.88
								4.00		0.25

DEVELOPMENT TOTALS: (Includes existing Commerce Park)

AREA SERVICED BY EXISTING 10 POINT BMP's :

Existing Stonehouse, Inc. Land dedicated to R.O.W.:	5.14	Acres
Area of Existing Paving within Commerce Park..:	3.22	Acres

AREA ASSOCIATED WITH PROPOSED EXTENSION :

Area of land reserved for future I-64 Interchange :	16.3	Acres
Area of land reserved from NOS/CE tract for Rt. 600:	1.33	Acres
Area of La Grange Extension R.O.W. per above :	8.14	Acres
Other Buffers and Open Space :	21.25	Acres
Total :	47.02	
Area of Paving proposed by LaGrange extension project :	4.21	Acres
Existing pavement to be demolished :	2.31	Acres
Percent Impervious	8.95%	

R/W = 13.29 AC.
4.21 AC. imp. (not to BMP)

STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

JCC PIN	CC SITE PLAN	LandMark #	PLAT ID.	DEED BK./PG.	OWNER NAME	AREA (Acres)	BLDG. AREA (square feet)	PARKING AND ROADS (square feet)	UNDEVELOPED OR OPEN SPACE (Acres)	DEDICATED UNDISTURBED NATURAL OPEN SPACE (Acres)
PARCELS DRAINING TO RICHARDSON MILL POND (Note: * Portions of Barre & Meadow View R.O.W. which also drain to RMP not included)										
1210100046	SP-46-00	11437W-11438W	SECTION C, PARCEL B	77 / 28&29	DESIGN MASTER	4.13	41245	64481	1.70	
1210100045	SP-47-99	0452W,10453W,11436	SECTION C, PARCEL C	73 / 38&39	JOHN DEERE					
					John Deere Phase 1	74.37	292000	318000	42.58	17.79
					John Deere Phase 2	Future > > >	162000	276000		
					TOTAL TO RICHARDSON MILL POND :	78.50	495245	658481	44.28	17.79
PARCELS DRAINING TO FRANCE SWAMP THROUGH EXISTING 10 PT. BMP's : (WQv Capable of supporting 30+ Acres of Impervious)										
1210100041	SP-11-95	11409W-11410W	SECTION A, PARCEL A-1	78 / 4&5	SOLAREX (Shell)	6.65	60000	37388	4.41	
1220100023		11409W-11410W	SECTION A, PARCEL A-2	78 / 4&5	J.C.C.I.D.A.	4.75			4.75	
1210100043	SP-7-98	11377W-11378W	SECTION B, LOT A	68 / 60&61	BARRE *	4.60	40000	35641	2.86	
1210100042	SP-96-95	5861W-5863W	SECTION A, PARCEL B	62 / 94,95,96	SOLAREX	15.00	66670	36000	12.64	
1210100044	SP-16-98	11377W-11378W	SECTION B, LOT B	68 / 60&61	AVID MEDICAL	3.10	30857	45007	1.36	
640100001			SECTION B, RESIDUAL		UNDEVELOPED	7.60			2.70	4.90
			AVID OPTION PARCEL		UNDEVELOPED	2.40			2.40	
OTHER LAND DRAINING TO FRANCE SWAMP:										
			SITE 15		UNDEVELOPED	7.40			6.29	1.11
			SITE 16		UNDEVELOPED	5.70			5.70	
			OPTION LOT		UNDEVELOPED	1.00			1.00	
			SITE 18		UNDEVELOPED	3.80			3.53	0.27
			SITE 19		UNDEVELOPED	10.00			6.81	3.19
			SITE 20		UNDEVELOPED	6.20			4.80	1.40
1210100047		11437W-11438W	SECTION C,	77/28&29,73/38&39	OWNER'S ASSOC.	16.85			16.85	
			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
		RESERVED FOR INTERCHANGE				16.30			16.30	
		ROAD RIGHTS OF WAY SOUTH OF I-64			*	9.28		140306	6.06	
					SUBTOTAL COMMERCE PARK TO FRANCE SWAMP :	149.07				
		POTENTIAL AREA NORTH OF I-64 OPENED BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		PROPOSED ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRAC	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22

PERCENT IMPERVIOUS FRANCE SWAMP WATERSHED: 3.81%

Note: The area of Stonehouse, Inc. land exceeds 4,000 acres. This summary accounts for only that land which could front on the road improvments currently proposed.

TABLE TWO

STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

JCC PIN	CC SITE PLAN	LandMark #	PLAT ID.	DEED BK./PG.	OWNER NAME	AREA (Acres)	BLDG. AREA (square feet)	PARKING AND ROADS (square feet)	UNDEVELOPED OR OPEN SPACE (Acres)	DEDICATED UNDISTURBED NATURAL OPEN SPACE (Acres)
PARCELS DRAINING TO RICHARDSON MILL POND (Note: * Portions of Barre & Meadow View R.O.W. which also drain to RMP not included)										
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1210100045	SP-47-99	10452W,10453W,11436W	SECTION C, PARCEL C	73 / 38&39	JOHN DEERE					
					John Deere Phase 1	74.37	292000	318000	42.58	17.79
					John Deere Phase 2	Future > > >	162000	276000		
					TOTAL :	78.50	495245	658481	44.28	17.79
PARCELS DRAINING TO FRANCE SWAMP THROUGH EXISTING 10 PT. BMP's : (WQv Capable of supporting 30+ Acres of Impervious)										
1210100041	SP-11-95	11409W-11410W	SECTION A, PARCEL A-1	78 / 4&5	SOLAREX (Shell)	6.65	60000	37388	4.41	
1220100023		11409W-11410W	SECTION A, PARCEL A-2	78 / 4&5	J.C.C.I.D.A.	4.75			4.75	
1210100043	SP-7-98	11377W-11378W	SECTION B, LOT A	68 / 60&61	BARRE *	4.60	40000	35641	2.86	
1210100042	SP-96-95	5861W-5863W	SECTION A, PARCEL B	62 / 94,95,96	SOLAREX	15.00	66670	36000	12.64	
1210100044	SP-16-98	11377W-11378W	SECTION B, LOT B	68 / 60&61	AVID MEDICAL	3.10	30857	45007	1.36	
640100001			SECTION B, RESIDUAL		UNDEVELOPED	7.60			2.70	4.90
			AVID OPTION PARCEL		UNDEVELOPED	2.40			2.40	
OTHER LAND DRAINING TO FRANCE SWAMP:										
			SITE 15		UNDEVELOPED	7.40			6.29	1.11
			SITE 16		UNDEVELOPED	5.70			5.70	
			OPTION LOT		UNDEVELOPED	1.00			1.00	
			SITE 18		UNDEVELOPED	3.80			3.53	0.27
			SITE 19		UNDEVELOPED	10.00			6.81	3.19
			SITE 20		UNDEVELOPED	6.20			4.80	1.40
1210100047		11437W-11438W	SECTION C,	77/28&29,73/38&39	OWNER'S ASSOC.	16.85			16.85	
			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
		RESERVED FOR INTERCHANGE				16.30			16.30	
		ROAD RIGHTS OF WAY SOUTH OF I-64			*	9.28		140306	6.06	
		AREA NORTH OF I-64 OPEN BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRACT	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22
					PERCENT IMPERVIOUS :		3.81%			

#1

#2

Subject _____

Computed _____ Checked _____

LANDMARK DESIGN GROUP

Project # _____

Client _____

Date _____ Sheet # _____

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants

COMMERCE PARK — 10 PT. ED POND — 2 IN/IMP ACRE

BMP #1

WET STORAGE VOLUME 138470 c.f. *

ΔV_{2Q} = 174220 c.f.

ΔV_{100Q} = 266371 c.f.

DRAINAGE AREA: 32.6 ACRES.

* CAN SUPPORT 19.1 ACRES IMPERVIOUS.

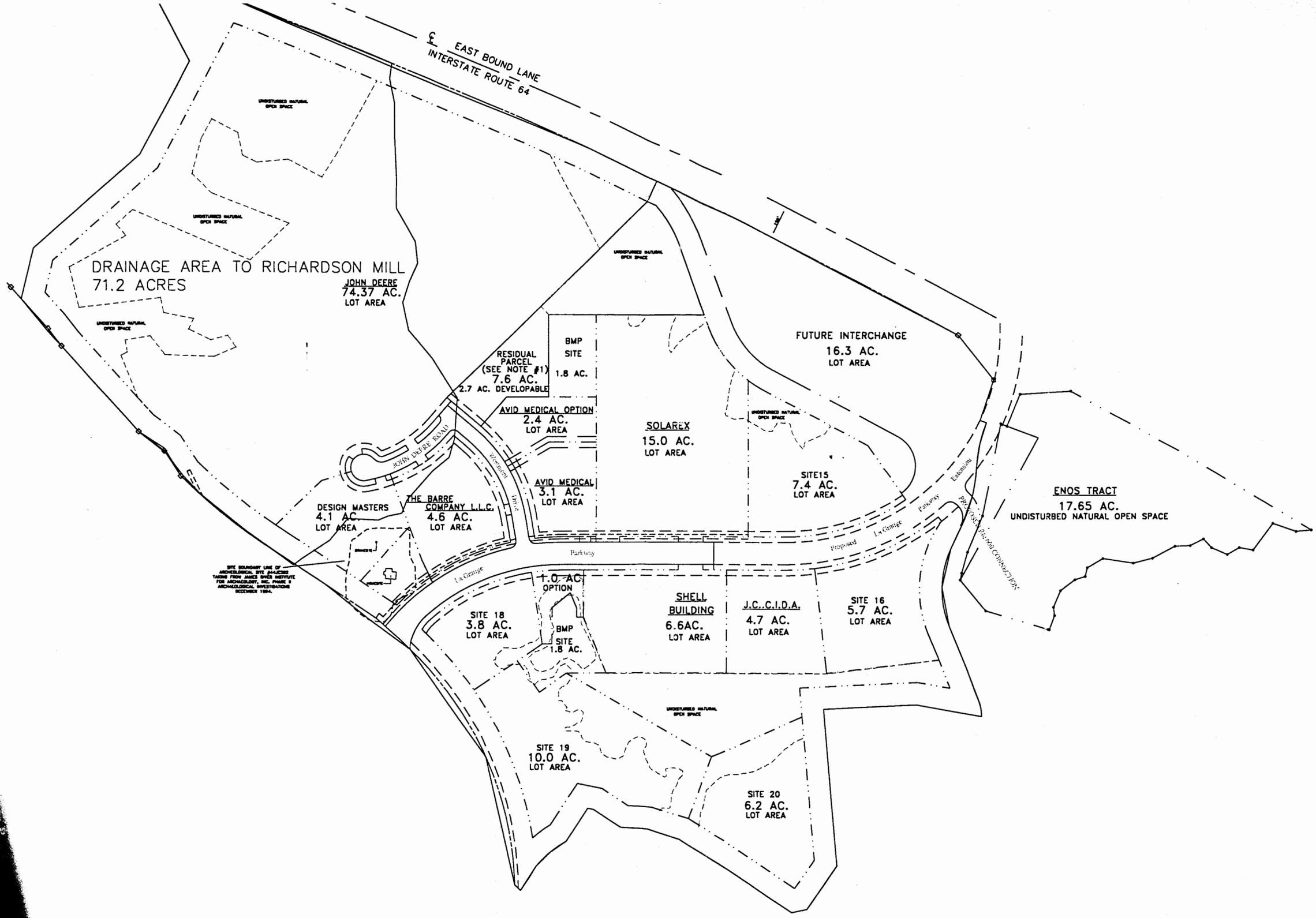
BMP # 2

WET STORAGE 83635 c.f. *

DRAINAGE AREA: 25.1 ACRES @ I = 50

* CAN SUPPORT 11.52 ACRES

EXISTING POND DATA


℄ EAST BOUND LANE
INTERSTATE ROUTE 64
DRAINAGE AREA TO RICHARDSON MILL
71.2 ACRES
JOHN DEERE
74.37 AC.
LOT AREA
UNDISTURBED NATURAL OPEN SPACE
RESIDUAL PARCEL (SEE NOTE #1)
7.6 AC.
2.7 AC. DEVELOPABLE
BMP SITE
1.8 AC.
AVID MEDICAL OPTION
2.4 AC.
LOT AREA
SOLAREX
15.0 AC.
LOT AREA
FUTURE INTERCHANGE
16.3 AC.
LOT AREA
SITE15
7.4 AC.
LOT AREA
ENOS TRACT
17.65 AC.
UNDISTURBED NATURAL OPEN SPACE
JOHN DEERE ROAD
Westmont Drive
AVID MEDICAL
3.1 AC.
LOT AREA
DESIGN MASTERS
4.1 AC.
LOT AREA
THE BARRE COMPANY L.L.C.
4.6 AC.
LOT AREA
Parkway
La Grange
Proposed
Extension
PROPOSED RAILROAD CONNECTION
SITE BOUNDARY LINE OF ARCHEOLOGICAL SITE 44JC202 TAKING FROM JAMES RIVER INSTITUTE FOR ARCHAEOLOGY, INC. PHASE II ARCHAEOLOGICAL INVESTIGATIONS DECEMBER 1994.
1.0 AC
OPTION
SITE 18
3.8 AC.
LOT AREA
BMP SITE
1.8 AC.
SHELL BUILDING
6.6AC.
LOT AREA
J.C..C.I.D.A.
4.7 AC.
LOT AREA
SITE 16
5.7 AC.
LOT AREA
SITE 19
10.0 AC.
LOT AREA
SITE 20
6.2 AC.
LOT AREA

Larry S. Barry, P.E., President
Norman H. Mason, L.S., Vice Pres.
Vaughn B. Rinner, C.L.A.
Kenneth A. Dierks
Robert P. Kerr, R.E.P., P.W.S.

LANDMARK DESIGN GROUP

Clayton E. Massey, P.E.
Charles R. Orsborne, L.S.
Stephen A. Romeo, L.S.
Mark W. Strickland, P.E.
A. Gary Webb, P.E.

February 5, 2001

Mr. Scott Thomas, P.E.
Environmental Engineer
James City County
P.O. Box 8784
Williamsburg, VA 23187-8784

Re: Stonehouse Commerce Park
LaGrange Parkway Extension
SP-82-00
LandMark Design Group # 1990140-000.11

Dear Scott:

I appreciate your willingness to meet with me to discuss the application of the Chesapeake Bay Protection Ordinance with regard to the La Grange Parkway Extension plans now under review. Enclosed are two spreadsheets summarizing the impervious area in relation to other land of the developer. Table One is an assessment of the paved area at completion of the presently proposed work in relation to land identified on existing plats as reserved for or associated with road construction. Without including similar open space granted to the Owner's Association, the percent impervious at 8.95% is below the 10% allowed by the ordinance.

Table Two is an inventory of the Commerce Park development to date. Presently it contains 228 acres of which 78.5 acres drain to the Richardson Mill Pond watershed. The remaining 149 acres drain to French Swamp. Seven sites comprising 44.1 acres are served by two existing 10 Point BMP's. We have estimated that there are an additional 220 acres that would be opened for development by the currently proposed extension. This gives a percent impervious within the French Swamp watershed of less than 4%.

Also enclosed are a copy of the Drainage Master Plan as revised in 1998 and a copy of the letter dated May 3, 1995 which outlines the approach to water quality planning being followed by the Stonehouse Development.

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants
4029 Ironbound Road, Suite 100, Williamsburg, VA 23188 (757) 253-2975 FAX: (757) 229-0049 lmdg@landmarkdgwb.com

I hope you find this helpful and will agree with our conclusion that structural BMP's are not necessary at this point. We fully expect to include such protections with the individual sites as they are developed.

Very truly yours,

The LandMark Design Group Inc.

Richard S. Phillips, P.E.
Senior Associate

RSP/cjp

Enclosure

Cc: Steve Campitell
File 1990140-000.11

TABLE ONE IMPERVIOUS AREA ASSESSMENT : La Grange Parkway Extension

		Begin	End	Length	Width ROW	Pavement Width	Turning Lanes / Cuts (s.f.)	ROW Area (Acres)	Paved Area (s.f.)	Paved Area (Acres)
La Grange Parkway EXISTING These sections are served by existing BMP"s										
	Station :	1050	2600	1550	100	58	17056	3.56	106956	2.46
Westmont Drive										
	Station :	1050	1650	600	60	29	0	0.83	17400	0.40
John Deere Road										
	Station :	1050	1600	550	60	29	0	0.76	15950	0.37
								5.14		3.22
La Grange Parkway Extension										
Route 600										
	Station :	1015	1300	285	60	29	0	0.39	8265	0.19
Taper	Station :	1300	1350	50	60	20	0	0.07	1225	0.03
										0.22
Pavement Demo				850		20			13000	0.30
	Prior plats dedicate 1.33 Acres for the reconstruciton of this Intersection.							0.46		-0.08
La Grange Parkway to Proposed intersection of Route 600										
	Station :	2600	3000	400	100	85	0	0.92	34000	0.78
Taper	Station :	3000	3500	500	100	29	0	1.15	28500	0.65
	Station :	3500	4200	700	100	29	0	1.61	20300	0.47
	Does not take into account increase in R.O.W. for slopes / drainage.							3.67		1.90
I-64 RO	Station :									
		4200	5400	1200	n.a.	29	0	n.a.	34800	0.80
Pvmt. / Ditch Demo		4200	5400	1200		32			38400	0.88
	Construction to take place within the Limits of existing I-64 R.O.W.									-0.08
Route 608										
	Station :	1015	1050	35		27	0		945	0.02
Taper	Station :	1050	1300	250		21	0		6000	0.14
										0.16
Pavement Demo							10875		10875	0.25
	Construction to take place within the Limits of existing I-64 R.O.W.									-0.09
La Grange / Six Mount Zion Realignment										
	Station :	5400	6300	900	100	29	2700	2.07	28800	0.66
Taper	Station :	6300	6350	50	100	29	0	0.11	1450	0.03
	Station :	6350	7143	793	100	24	0	1.82	19032	0.44
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DEVELOPMENT TOTALS: (Includes existing Commerce Park)

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STONEHOUSE COMMERCE PARK DEVELOPMENT INVENTORY

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			PEDESTRIAN PATH		Future > > >	3.60		12000	3	
			SECTION B, BMP #1			1.80			1.80	
			SECTION A, BMP #2			1.80			1.80	
			BUFFERS & OPEN SPACE			21.25			14.55	6.70
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	SUBTOTAL COMMERCE PARK TO FRANCE SWAMP :					149.07				
		POTENTIAL AREA NORTH OF I-64 OPENED BY LA GRANGE EXTENSION			UNDEVELOPED	216.70			216.70	
		PROPOSED ROAD RIGHTS OF WAY NORTH OF I-64				4.00		141572		
		5861W-5863W	SECTION A, NOS / CE TRAC	62 / 94,95,96		18.98			1.33	17.65
					TOTALS TO DATE:	388.75		645441		35.22

PERCENT IMPERVIOUS FRANCE SWAMP WATERSHED: 3.81%

Note: The area of Stonehouse, Inc. land exceeds 4,000 acres. This summary accounts for only that land which could front on the road improvments currently proposed.

TABLE TWO

STRUCTURAL DENOMINATOR

247.3 AC - 99.9 AC = 147.4 AC

COMMERCE PARK AT STONEHOUSE
STRUCTURAL BMP POINT SYSTEM

NOT NECESSARY - SUPERCEDED by use of Richardson Mill Pond

BMP	BMP POINTS		FRACTION OF SITE SERVED BY BMP		WEIGHTED BMP POINTS	Rv = 0.05+0.009I ASSUME I = 50%	R_m	$V_r = (R_m)(R_v) \times \frac{AC.}{12}$ (AC.FT.)	V_r (CU.FT.)	H x V_r (CU.FT.)
1 WET POND	9	X	32.6 AC. / 247.3 = 0.143 (32.6/147.4 = 0.22)	=	~~1.1864~~ 1.99	0.50	0.45	0.611	26,626	106,504
2 WET POND	9	X	10.9 / 247.3 = 0.048	=	0.3967			0.223	9,719	38,877
3 WET POND	9	X	6.7 / 247.3 = 0.029	=	0.2438			0.126	5,472	21,889
4 WET POND	9	X	7.6 / 247.3 = 0.033	=	0.2766			0.143	6,207	24,829
5 WET POND ASSUME IT IS BUILT	~~9~~ 10	X	11.6 / 247.3 = 0.051 (11.6/147.4 = 0.08)	=	~~0.4222~~ 0.8			0.218	9,474	37,897
6 WET POND	9	X	11.7 / 247.3 = 0.051	=	0.4258			0.219	9,556	38,224
7 WET POND	9	X	26.3 / 247.3 = 0.115 (26.3/147.4 = 0.18)	=	~~0.9571~~ 1.62			0.493	21,480	85,922
8 WET POND	9	X	9.4 / 247.3 = 0.041	=	~~0.3421~~ 0.57			0.176	7,677	30,710
9 WET POND JOHN DEERE	9	X	14.3 / 247.3 = 0.063 (14.3/147.4 = 0.10)	=	~~0.5204~~ 0.9			0.268	11,680	46,718
10 WET POND JOHN DEERE	9	X	25.3 / 247.3 = 0.111 (25.3/147.4 = 0.17)	=	~~0.9207~~ 1.5			0.479	20,664	82,655
11 WET POND	9	X	9.8 + 8.6 AC. O.S. / 247.3 = 0.043	=	0.6670	0.50	0.45	0.345	15,028	60,113
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					~~6.361~~ 7.38					

FRACTION OF SITE		NATURAL OPEN SPACE CREDIT		POINTS FOR NATURAL OPEN SPACE	TOTAL WEIGHTED POINTS				
99.9 AC. / 247.3	X	36.79%	=	3.679	6.361	X	3.679	=	10.04
		(0.1 per 1%)			STRUCTURAL BMP POINTS		NATURAL OPEN SPACE POINTS		TOTAL

ASSUMING 0.15 OPEN SPACE

99.9 X 0.25 = 25 Ac

$\frac{75}{247.3}$ = 0.30 = 30% X 0.1 = 3 POINTS.

$\frac{25}{247.3}$ = 0.10 = 10% X 0.15 = 1.5

4.5 POINTS

VS.

3.679

Δ = 0.821 POINTS

THIS WOULD NEGATE NEED FOR BMP #5

7.38 STRUCTURAL

+ 3.68 OPEN SPACE

11.06

DRAINAGE,

STORMWATER MANAGEMENT,

EROSION AND SEDIMENT CONTROL,

AND PAVEMENT DESIGN CALCULATIONS

FOR

COMMERCE PARKWAY

AT

STONEHOUSE, PHASE I

REV JAN. 5,1995
REV OCT. 11,1994
MAY 31, 1994
1/5/95

Langley and McDonald, P.C.

Engineers
Surveyors
Planners
Landscape Architects
Environmental Consultants

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(804) 473-2000 FAX: (804) 497-7933

201 Packets Court, Williamsburg, VA 23185
(804) 253-2975 FAX: (804) 229-0049

DRAINAGE,

STORMWATER MANAGEMENT,

EROSION AND SEDIMENT CONTROL,

AND PAVEMENT DESIGN CALCULATIONS

FOR

COMMERCE PARKWAY

AT

STONEHOUSE, PHASE I

COMMONWEALTH OF VIRGINIA
JOHN L. HUTCHERSON
No.
7753
CERTIFIED PROFESSIONAL ENGINEER

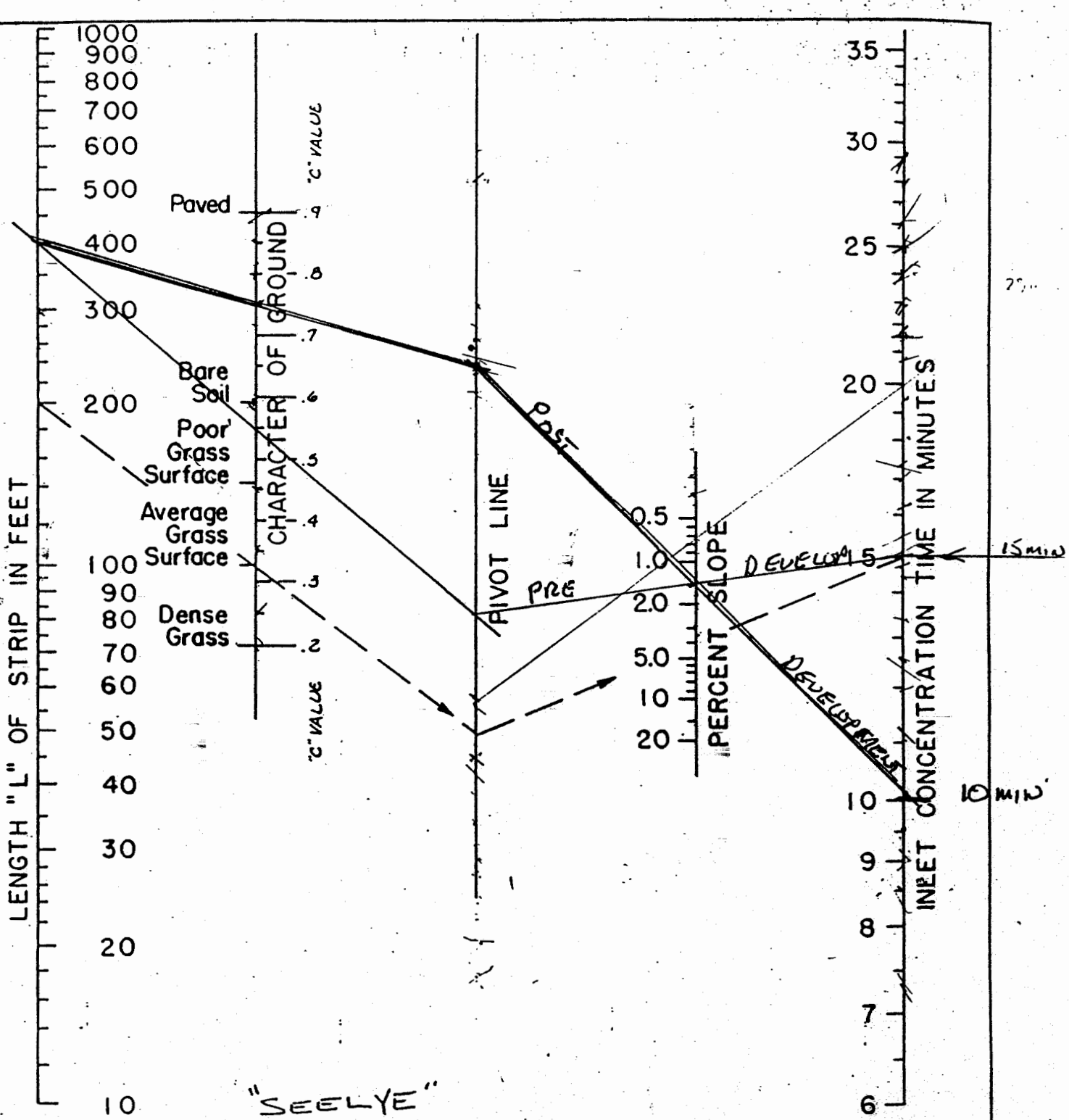
REV JAN. 5,1995
REV OCT. 11,1994
MAY 31, 1994

DRAINAGE, STORMWATER MANAGEMENT, AND EROSION CONTROL DESIGN

The Drainage and overall Stormwater Management of this project was designed in accordance with James City County's 10 point BMP treatment. The Erosion and Sediment Control measures taken in this project were designed in conformance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

The Stormwater attenuation was designed using the SCS Tabular Hydrograph Method and run on Haested Methods, Inc.'s Quick TR55 and Pond 2 software. 24 Hr. Precipitation Data was provided by Mr. Darryl Cook based on historical records of the Williamsburg area.

FIG. 1.5.1.1



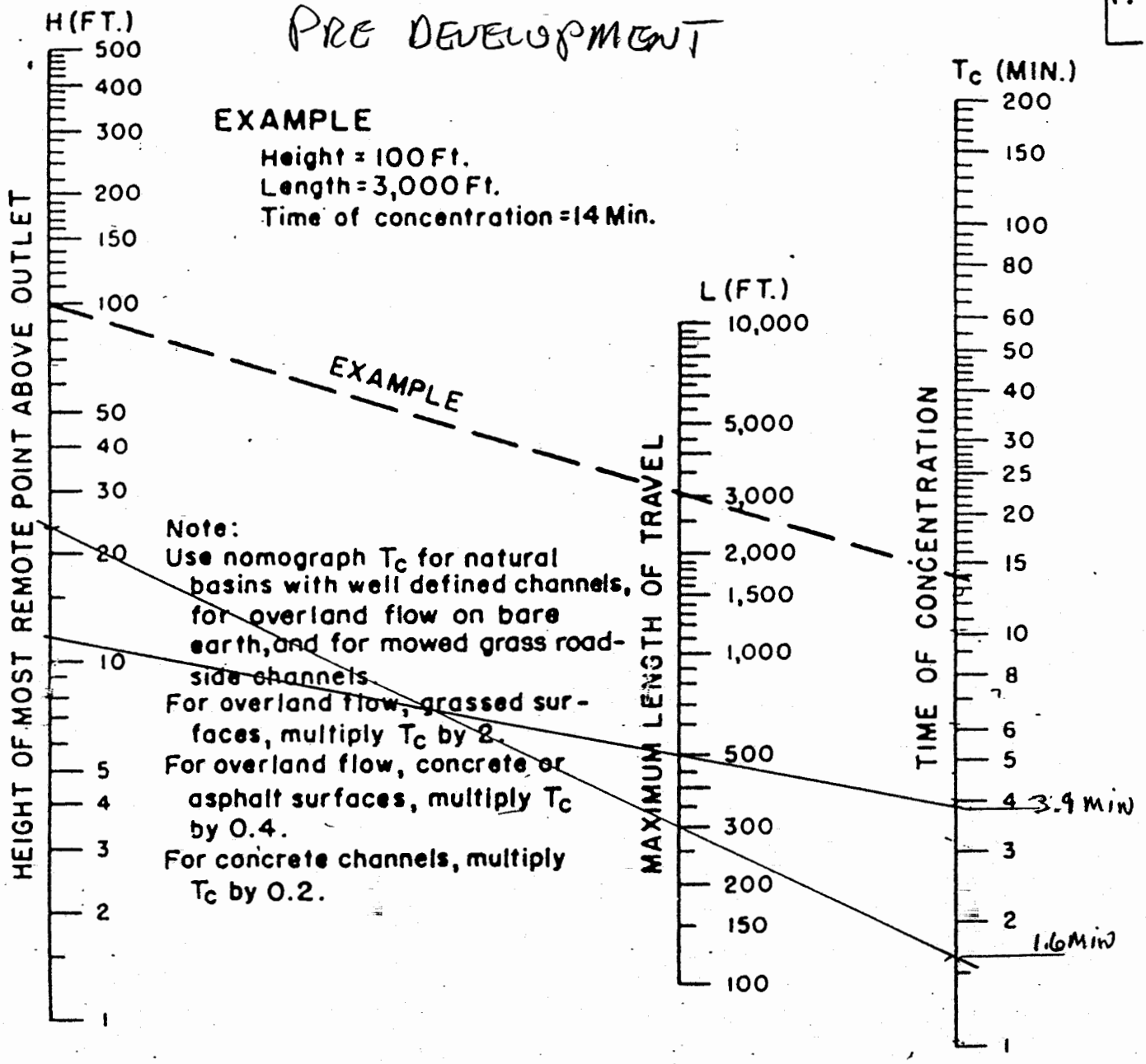
"SEELYE"

[OVERLAND] FLOW TIME

(SHEET)

REPRINTED WITH PERMISSION FROM "DATA BOOK FOR CIVIL ENGINEERS" VOL. I - DESIGN 2ND EDITION (1951) BY E. E. SEELYE

TCC



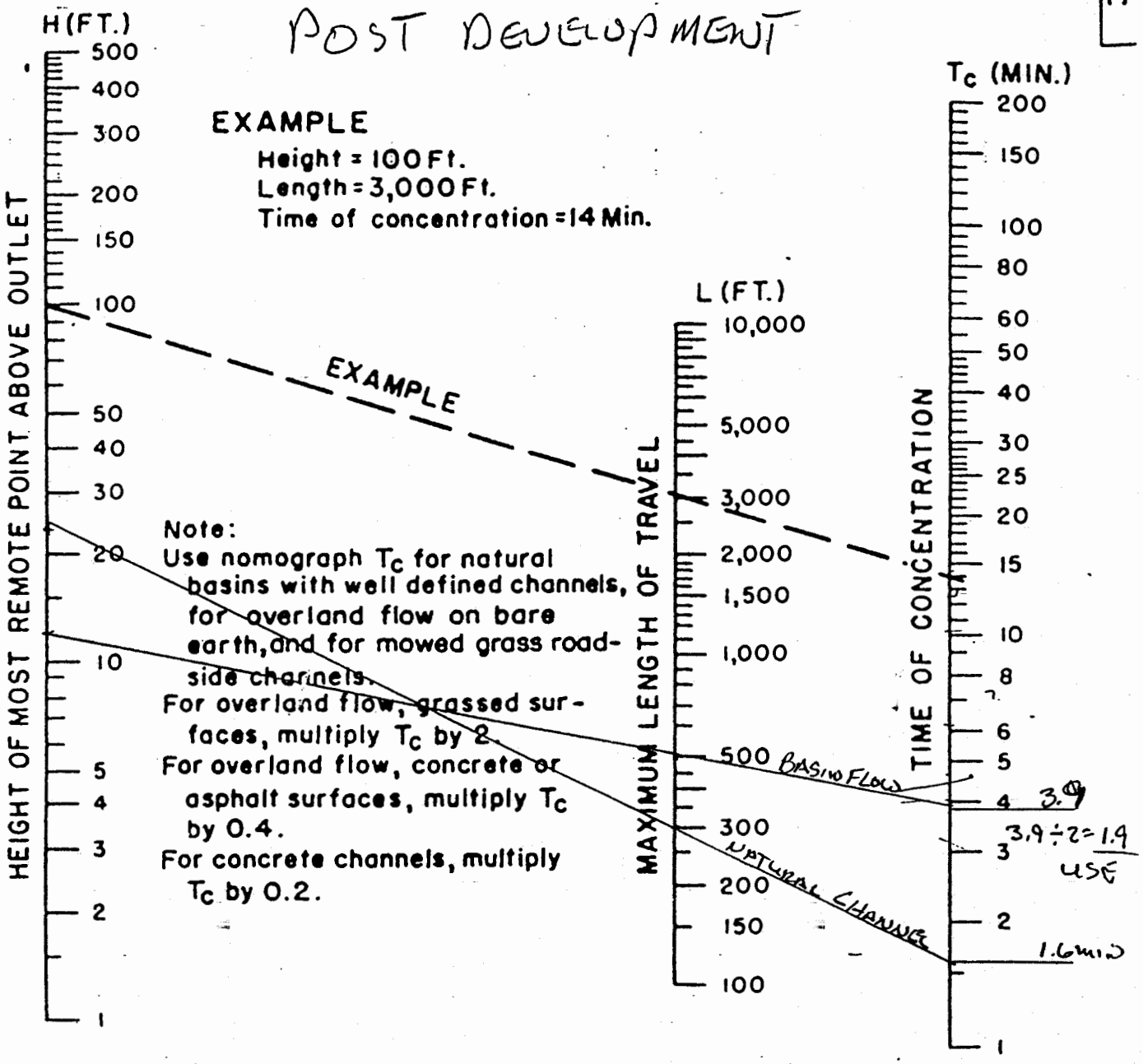
Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

WC035_STONEHOUSE_COMMERCE_PK - 069

TCC

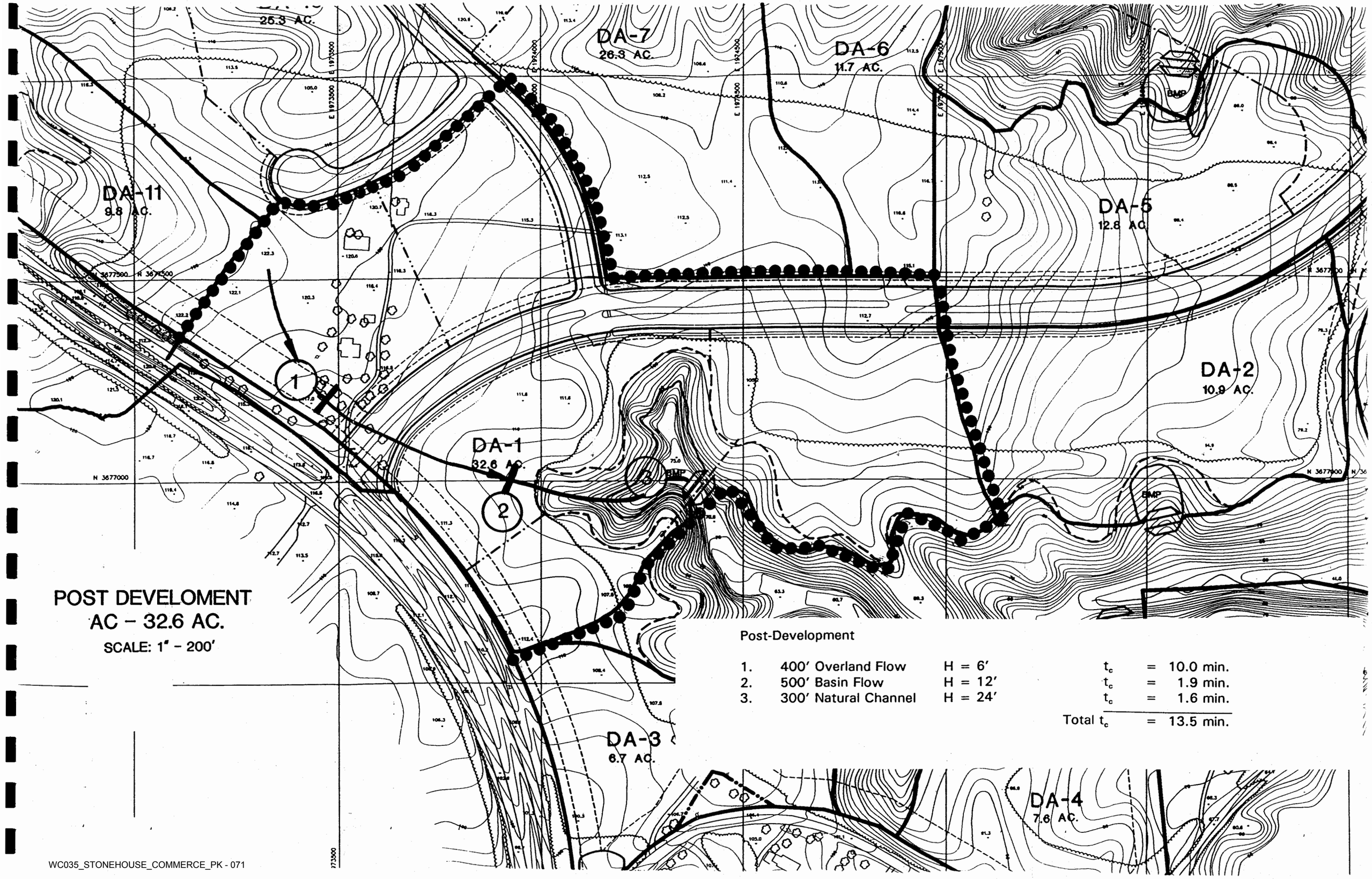
POST DEVELOPMENT



Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

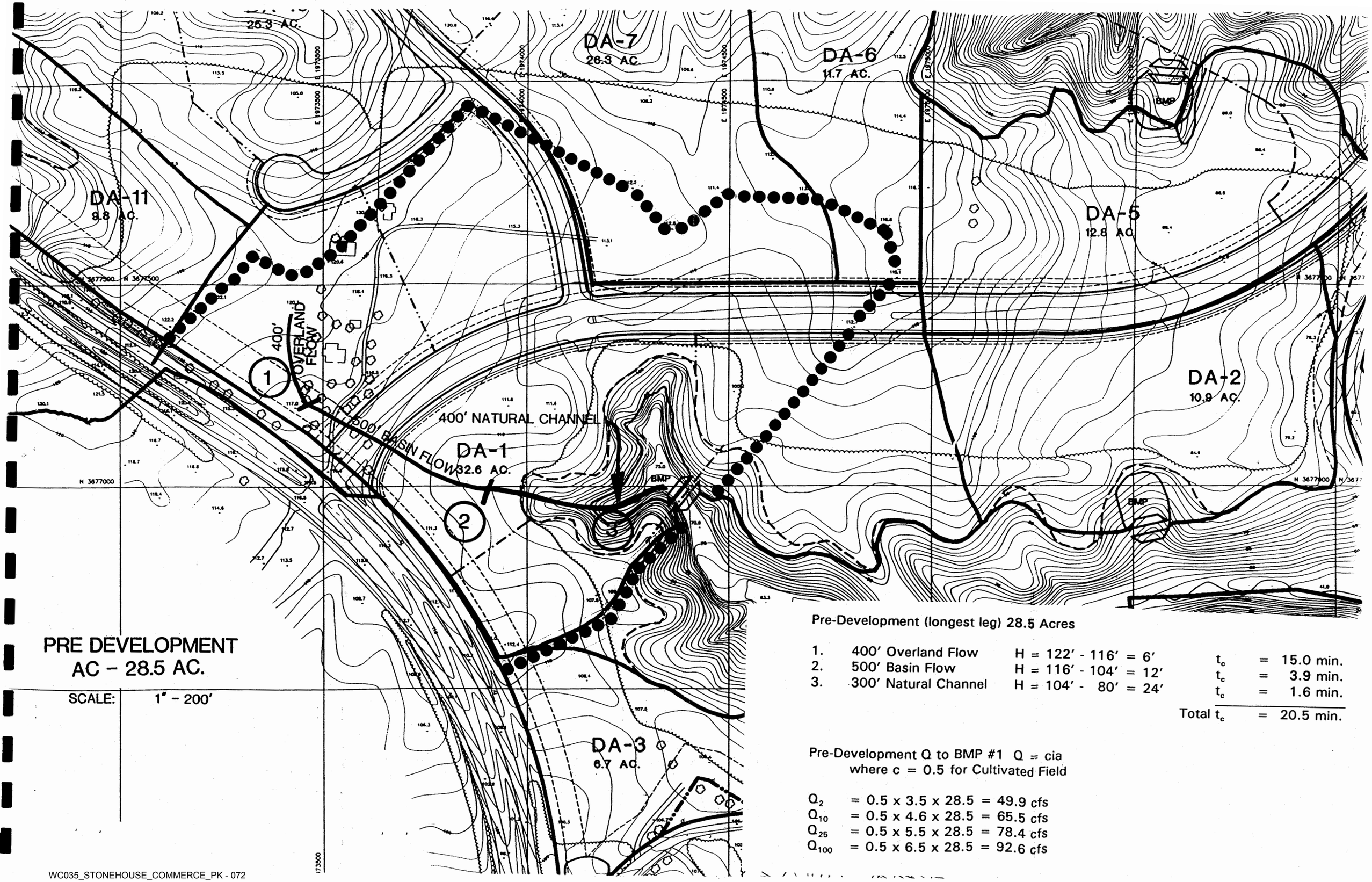
TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

WC035_STONEHOUSE_COMMERCE_PK - 070



Post-Development

1.	400′ Overland Flow	H = 6′	t_c	=	10.0 min.
2.	500′ Basin Flow	H = 12′	t_c	=	1.9 min.
3.	300′ Natural Channel	H = 24′	t_c	=	1.6 min.
			Total t_c	=	13.5 min.



PRE DEVELOPMENT
AC – 28.5 AC.

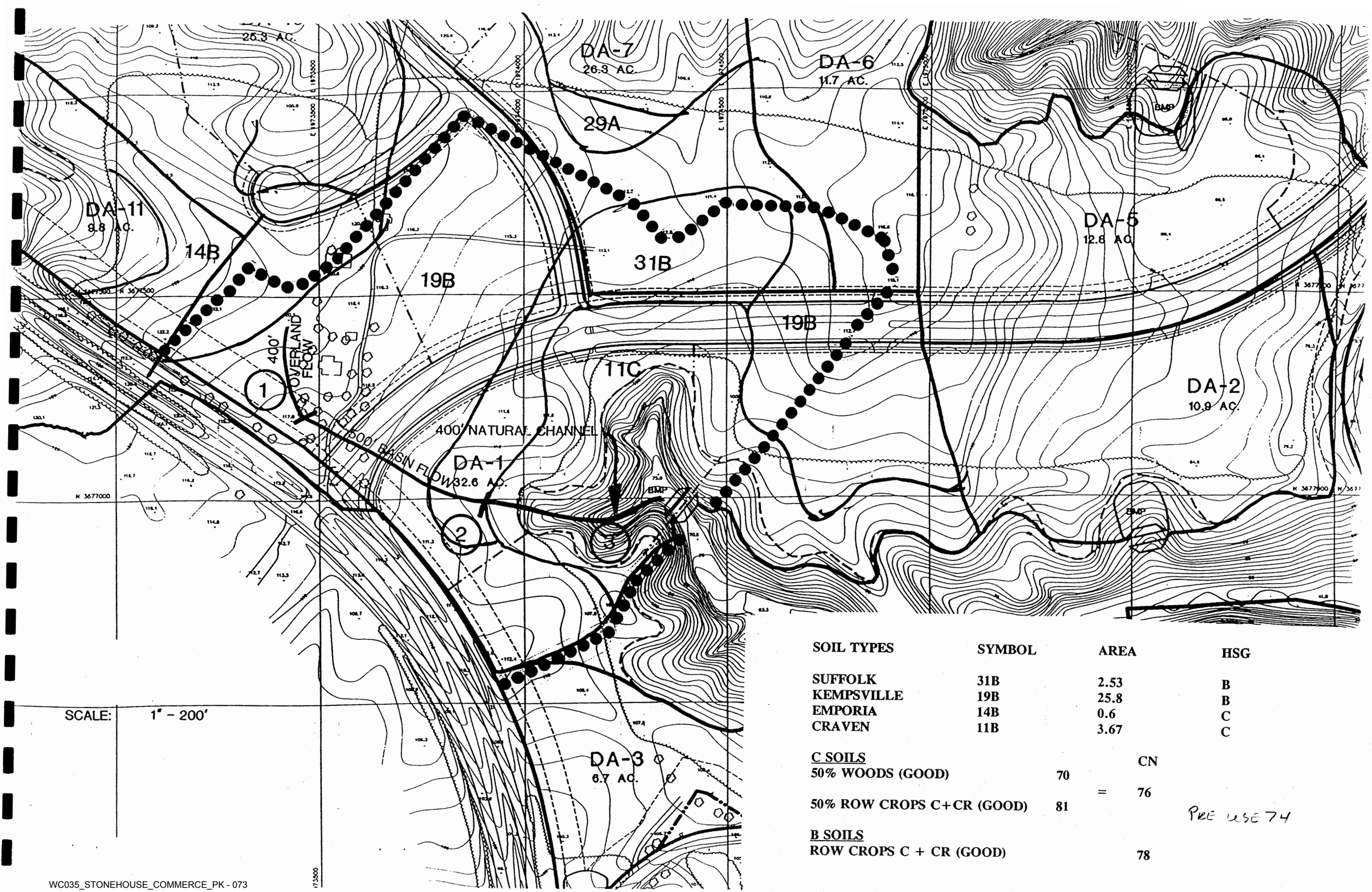
SCALE: 1" – 200'

Pre-Development (longest leg) 28.5 Acres

1.	400' Overland Flow	H = 122' - 116' = 6'	t_c	= 15.0 min.
2.	500' Basin Flow	H = 116' - 104' = 12'	t_c	= 3.9 min.
3.	300' Natural Channel	H = 104' - 80' = 24'	t_c	= 1.6 min.
			Total t_c	= 20.5 min.

Pre-Development Q to BMP #1 Q = cia
where c = 0.5 for Cultivated Field

Q_2 = 0.5 x 3.5 x 28.5 = 49.9 cfs
Q_{10} = 0.5 x 4.6 x 28.5 = 65.5 cfs
Q_{25} = 0.5 x 5.5 x 28.5 = 78.4 cfs
Q_{100} = 0.5 x 6.5 x 28.5 = 92.6 cfs

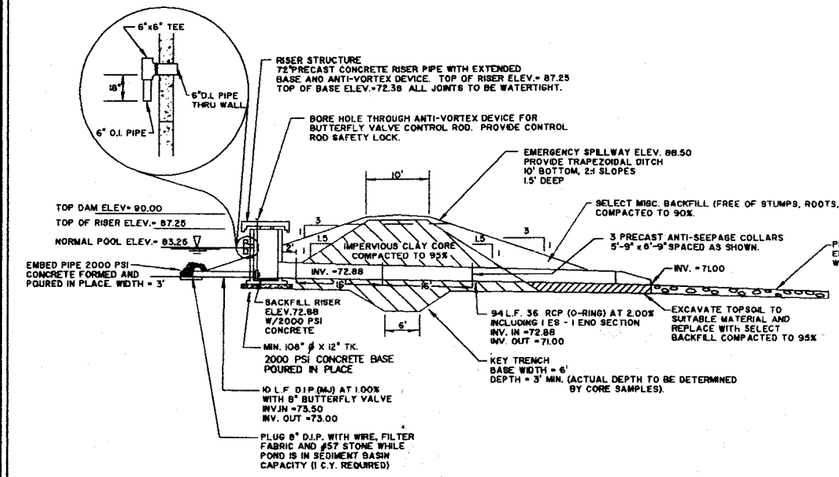


SOIL TYPES	SYMBOL	AREA	HSG
SUFFOLK	31B	2.53	B
KEMPSVILLE	19B	25.8	B
EMPORIA	14B	0.6	C
CRAVEN	11B	3.67	C

			CN
C SOILS			
50% WOODS (GOOD)	70		
		=	76
50% ROW CROPS C+CR (GOOD)	81		
B SOILS			
ROW CROPS C + CR (GOOD)			78

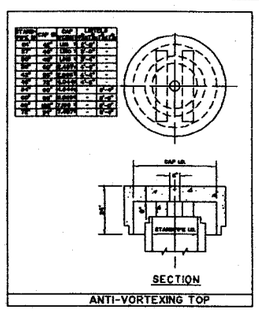
PRE USE 74

WC035_STONEHOUSE_COMMERCE_PK - 073

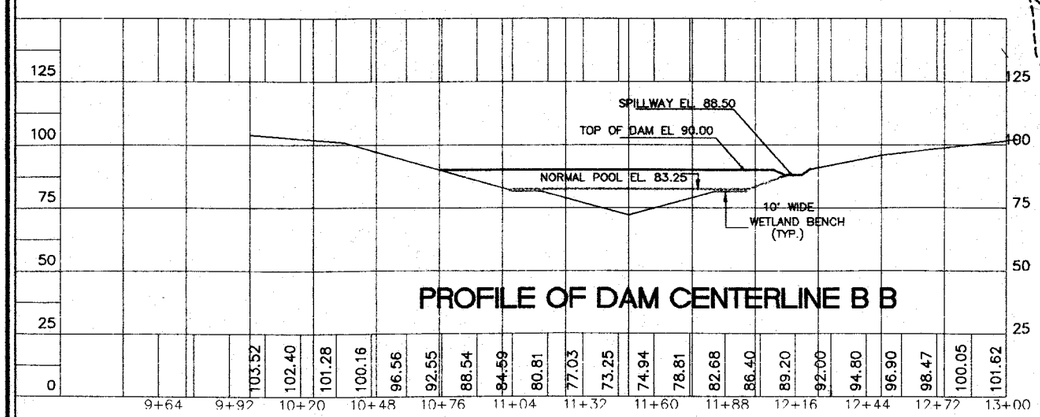


SECTION A-A

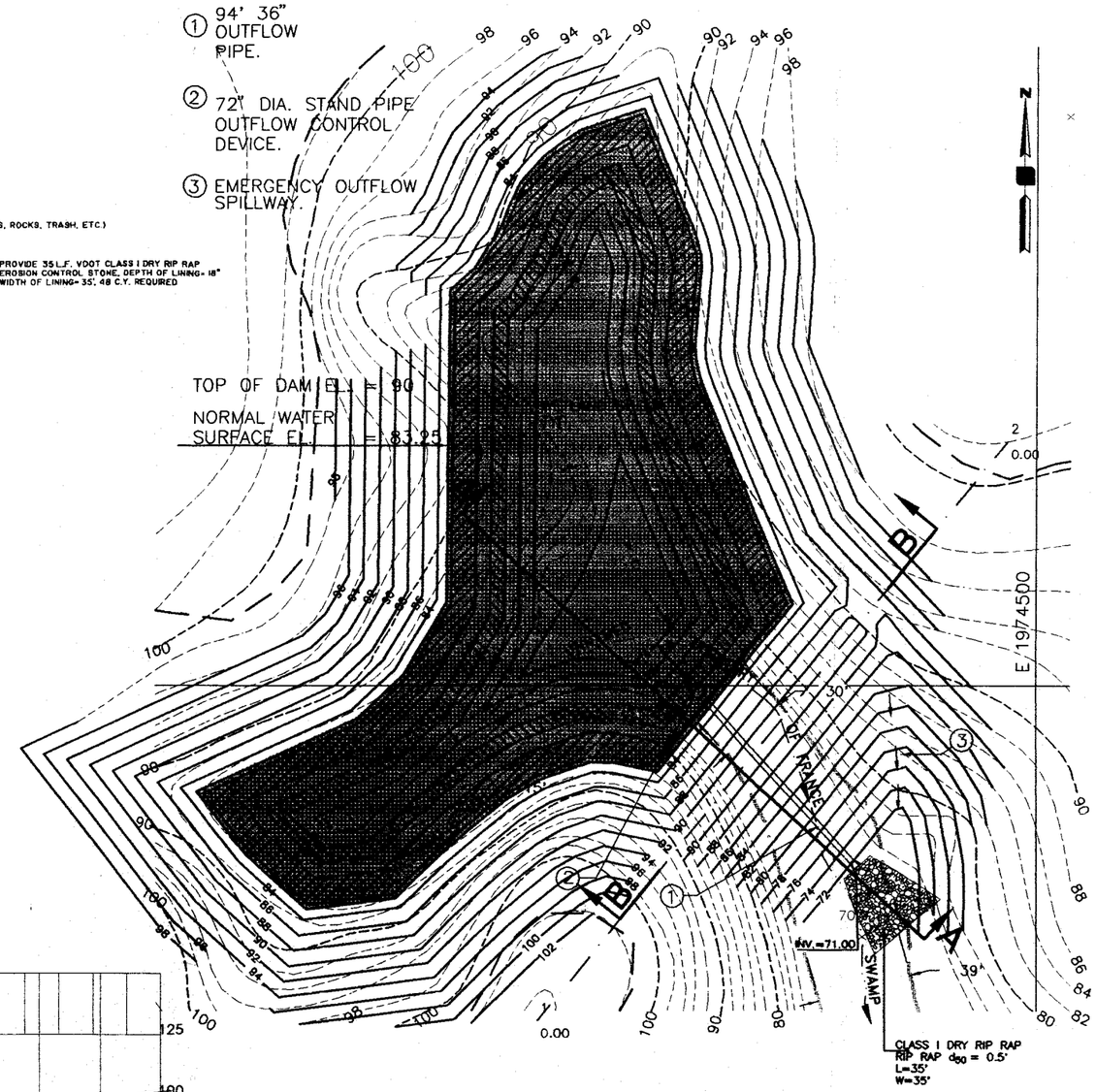
NOT TO SCALE



SCALES:
1" =25' HOR
1" =25' VER



PROFILE OF DAM CENTERLINE B B



BMP PLAN

SCALE: 1"=25'

Langley and McDonald, P.C.
Engineers • Surveyors • Planners
Landscape Architects • Environmental Consultants
VIRGINIA BEACH WILLIAMSBURG

DES. J.L.H.
DWN. J.A.M.
CHK.
DATE 6/24/94

STONEHOUSE PARKWAY, PHASE I
AT
COMMERCE PARK
FOR
STONEHOUSE, INC.
BMP PLAN

SHEET 14 OF 22
DISK
PROJ. NO. 89049-29-5
DWG. 029RP014

TABULAR HYDROGRAPH METHOD MULTIPLE RUN OPTIONS (.MOP)

89046-PR <-- This File .WSD File --> 89046-PR

Note: Don't input .WSD file if CN & Tc/Tt files are entered below titles.

Title: SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

<--.RCN File Tc File: . Tt File: .

Specify TCT or TCM extension in the field after the Tc File and in the field after the Tt File.

Return Frequency (years):	2	10	25	100
24-hr Precip. (inches):	3.50	5.80	6.25	7.70
Hydrograph Files (.HYD):	SCS2PR	SCS10PR	SCS25PR	SCS100PR

SCS Distribution Type? II

Interpolate Ia/P (y/n)? Y

OUTPUT OPTIONS

* Input Data * Peaks * Hydrograph Summary * Hydrographs

<Esc> Exit <F5> Compute

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	3.50	1.24	I.2	.20

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 39 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	39	12.3
Composite Watershed	39	12.3

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	1	1	1	4	9	22	38	39	29
Total (cfs)	1	1	1	4	9	22	38	39	29

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	19	13	10	8	6	5	4	4	3
Total (cfs)	19	13	10	8	6	5	4	4	3

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	3	3	3	2	2	2	2	2	2
Total (cfs)	3	3	3	2	2	2	2	2	2

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	1	1	1	1	0
Total (cfs)	1	1	1	1	0

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	1	14.8	2
11.1	1	14.9	2
11.2	1	15.0	2
11.3	1	15.1	2
11.4	1	15.2	2
11.5	1	15.3	2
11.6	1	15.4	2
11.7	2	15.5	2
11.8	3	15.6	2
11.9	4	15.7	2
12.0	9	15.8	2
12.1	22	15.9	2
12.2	38	16.0	2
12.3	39	16.1	2
12.4	29	16.2	2
12.5	19	16.3	2
12.6	13	16.4	2
12.7	10	16.5	2
12.8	8	16.6	2
12.9	7	16.7	2
13.0	6	16.8	2
13.1	5	16.9	2
13.2	5	17.0	2
13.3	4	17.1	2
13.4	4	17.2	2
13.5	4	17.3	2
13.6	4	17.4	2
13.7	3	17.5	2
13.8	3	17.6	2
13.9	3	17.7	2
14.0	3	17.8	1
14.1	3	17.9	1
14.2	3	18.0	1
14.3	3	18.1	1
14.4	3	18.2	1
14.5	3	18.3	1
14.6	3	18.4	1
14.7	3	18.5	1

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	1	22.4	1
18.7	1	22.5	1
18.8	1	22.6	1
18.9	1	22.7	1
19.0	1	22.8	1
19.1	1	22.9	1
19.2	1	23.0	1
19.3	1	23.1	1
19.4	1	23.2	1
19.5	1	23.3	1
19.6	1	23.4	1
19.7	1	23.5	1
19.8	1	23.6	1
19.9	1	23.7	1
20.0	1	23.8	1
20.1	1	23.9	1
20.2	1	24.0	1
20.3	1	24.1	0
20.4	1	24.2	0
20.5	1	24.3	0
20.6	1	24.4	0
20.7	1	24.5	0
20.8	1	24.6	0
20.9	1	24.7	0
21.0	1	24.8	0
21.1	1	24.9	0
21.2	1	25.0	0
21.3	1	25.1	0
21.4	1	25.2	0
21.5	1	25.3	0
21.6	1	25.4	0
21.7	1	25.5	0
21.8	1	25.6	0
21.9	1	25.7	0
22.0	1	25.8	0
22.1	1	25.9	0
22.2	1		
22.3	1		

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	5.80	I	3.02	I.12	.12

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 102 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	102	12.2
Composite Watershed	102	12.2

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	4	6	17	34	66	102	102	71
Total (cfs)	3	4	6	17	34	66	102	102	71

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	44	31	23	18	13	10	9	8	7
Total (cfs)	44	31	23	18	13	10	9	8	7

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	7	6	5	5	4	4	4	3	3
Total (cfs)	7	6	5	5	4	4	4	3	3

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	3	3	2	2	0
Total (cfs)	3	3	2	2	0

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	5
11.1	3	14.9	5
11.2	4	15.0	5
11.3	4	15.1	5
11.4	5	15.2	5
11.5	5	15.3	4
11.6	6	15.4	4
11.7	10	15.5	4
11.8	13	15.6	4
11.9	17	15.7	4
12.0	34	15.8	4
12.1	66	15.9	4
12.2	102	16.0	4
12.3	102	16.1	4
12.4	71	16.2	4
12.5	44	16.3	4
12.6	31	16.4	4
12.7	23	16.5	4
12.8	18	16.6	4
12.9	15	16.7	4
13.0	13	16.8	3
13.1	11	16.9	3
13.2	10	17.0	3
13.3	9	17.1	3
13.4	9	17.2	3
13.5	9	17.3	3
13.6	8	17.4	3
13.7	7	17.5	3
13.8	7	17.6	3
13.9	7	17.7	3
14.0	7	17.8	3
14.1	7	17.9	3
14.2	6	18.0	3
14.3	6	18.1	3
14.4	6	18.2	3
14.5	5	18.3	3
14.6	5	18.4	3
14.7	5	18.5	3

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	3	22.4	2
18.7	3	22.5	2
18.8	3	22.6	2
18.9	3	22.7	2
19.0	3	22.8	2
19.1	3	22.9	2
19.2	3	23.0	2
19.3	3	23.1	1
19.4	3	23.2	1
19.5	3	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	1
20.4	2	24.2	1
20.5	2	24.3	1
20.6	2	24.4	1
20.7	2	24.5	1
20.8	2	24.6	1
20.9	2	24.7	1
21.0	2	24.8	1
21.1	2	24.9	1
21.2	2	25.0	1
21.3	2	25.1	0
21.4	2	25.2	0
21.5	2	25.3	0
21.6	2	25.4	0
21.7	2	25.5	0
21.8	2	25.6	0
21.9	2	25.7	0
22.0	2	25.8	0
22.1	2	25.9	0
22.2	2		
22.3	2		

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	6.25	3.40	I.11	.11

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 116 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	116	12.2
Composite Watershed	116	12.2

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	5	7	20	39	76	116	116	79
Total (cfs)	3	5	7	20	39	76	116	116	79

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	49	34	26	20	14	12	10	9	8
Total (cfs)	49	34	26	20	14	12	10	9	8

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	7	7	6	5	5	4	4	4	3
Total (cfs)	7	7	6	5	5	4	4	4	3

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	3	3	2	2	0
Total (cfs)	3	3	2	2	0

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	5
11.1	4	14.9	5
11.2	4	15.0	5
11.3	5	15.1	5
11.4	6	15.2	5
11.5	6	15.3	5
11.6	7	15.4	5
11.7	11	15.5	5
11.8	16	15.6	5
11.9	20	15.7	5
12.0	39	15.8	4
12.1	76	15.9	4
12.2	116	16.0	4
12.3	116	16.1	4
12.4	79	16.2	4
12.5	49	16.3	4
12.6	34	16.4	4
12.7	26	16.5	4
12.8	20	16.6	4
12.9	17	16.7	4
13.0	14	16.8	4
13.1	13	16.9	4
13.2	12	17.0	4
13.3	11	17.1	4
13.4	10	17.2	4
13.5	10	17.3	3
13.6	9	17.4	3
13.7	8	17.5	3
13.8	8	17.6	3
13.9	7	17.7	3
14.0	7	17.8	3
14.1	7	17.9	3
14.2	7	18.0	3
14.3	7	18.1	3
14.4	7	18.2	3
14.5	6	18.3	3
14.6	6	18.4	3
14.7	6	18.5	3

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	3	22.4	2
18.7	3	22.5	2
18.8	3	22.6	2
18.9	3	22.7	2
19.0	3	22.8	2
19.1	3	22.9	2
19.2	3	23.0	2
19.3	3	23.1	1
19.4	3	23.2	1
19.5	3	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	1
20.4	2	24.2	1
20.5	2	24.3	1
20.6	2	24.4	1
20.7	2	24.5	1
20.8	2	24.6	1
20.9	2	24.7	1
21.0	2	24.8	1
21.1	2	24.9	1
21.2	2	25.0	1
21.3	2	25.1	0
21.4	2	25.2	0
21.5	2	25.3	0
21.6	2	25.4	0
21.7	2	25.5	0
21.8	2	25.6	0
21.9	2	25.7	0
22.0	2	25.8	0
22.1	2	25.9	0
22.2	2		
22.3	2		

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	7.70	4.66	I.09	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 160 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	160	12.2
Composite Watershed	160	12.2

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	5	7	10	28	56	106	160	160	109
Total (cfs)	5	7	10	28	56	106	160	160	109

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	67	47	35	27	19	16	14	12	11
Total (cfs)	67	47	35	27	19	16	14	12	11

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	10	9	8	7	7	6	5	5	5
Total (cfs)	10	9	8	7	7	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	4	4	3	3	0
Total (cfs)	4	4	3	3	0

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	5	14.8	7
11.1	6	14.9	7
11.2	6	15.0	7
11.3	7	15.1	7
11.4	8	15.2	7
11.5	9	15.3	7
11.6	10	15.4	7
11.7	16	15.5	7
11.8	22	15.6	7
11.9	28	15.7	7
12.0	56	15.8	6
12.1	106	15.9	6
12.2	160	16.0	6
12.3	160	16.1	6
12.4	109	16.2	6
12.5	67	16.3	5
12.6	47	16.4	5
12.7	35	16.5	5
12.8	27	16.6	5
12.9	23	16.7	5
13.0	19	16.8	5
13.1	17	16.9	5
13.2	16	17.0	5
13.3	15	17.1	5
13.4	14	17.2	5
13.5	13	17.3	5
13.6	12	17.4	5
13.7	11	17.5	5
13.8	11	17.6	5
13.9	10	17.7	5
14.0	10	17.8	4
14.1	10	17.9	4
14.2	9	18.0	4
14.3	9	18.1	4
14.4	9	18.2	4
14.5	8	18.3	4
14.6	8	18.4	4
14.7	8	18.5	4

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	4	22.4	3
18.7	4	22.5	3
18.8	4	22.6	3
18.9	4	22.7	2
19.0	4	22.8	2
19.1	4	22.9	2
19.2	4	23.0	2
19.3	4	23.1	2
19.4	4	23.2	2
19.5	4	23.3	2
19.6	3	23.4	2
19.7	3	23.5	2
19.8	3	23.6	2
19.9	3	23.7	2
20.0	3	23.8	2
20.1	3	23.9	2
20.2	3	24.0	2
20.3	3	24.1	1
20.4	3	24.2	1
20.5	3	24.3	1
20.6	3	24.4	1
20.7	3	24.5	1
20.8	3	24.6	1
20.9	3	24.7	1
21.0	3	24.8	1
21.1	3	24.9	1
21.2	3	25.0	1
21.3	3	25.1	1
21.4	3	25.2	1
21.5	3	25.3	1
21.6	3	25.4	0
21.7	3	25.5	0
21.8	3	25.6	0
21.9	3	25.7	0
22.0	3	25.8	0
22.1	3	25.9	0
22.2	3		
22.3	3		

TABULAR HYDROGRAPH METHOD MULTIPLE RUN OPTIONS (.MOP)

89046-PO <-- This File .WSD File --> 89046-PO

Note: Don't input .WSD file if CN & Tc/Tt files are entered below titles.

Title: SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

<--.RCN File Tc File: . Tt File: .

Specify TCT or TCM extension in the field after the Tc File and in the field after the Tt File.

Return Frequency (years):	2	10	25	100
24-hr Precip. (inches):	3.50	5.80	6.25	7.70
Hydrograph Files (.HYD):	SCS2PO	SCS10PO	SCS25PO	SCS100PO

SCS Distribution Type? II

Interpolate Ia/P (y/n)? Y

OUTPUT OPTIONS

* Input Data * Peaks * Hydrograph Summary * Hydrographs

<Esc> Exit <F5> Compute

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:35:55
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	3.50	I	2.45	I.06	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 100 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	100	12.2
Composite Watershed	100	12.2

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MDP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	4	6	26	50	92	100	60	31
Total (cfs)	3	4	6	26	50	92	100	60	31

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	21	16	13	11	9	8	7	6	5
Total (cfs)	21	16	13	11	9	8	7	6	5

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	5	4	4	4	3	3	3	2	2
Total (cfs)	5	4	4	4	3	3	3	2	2

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	2	2	2	1	0
Total (cfs)	2	2	2	1	0

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	4
11.1	3	14.9	4
11.2	4	15.0	4
11.3	4	15.1	4
11.4	5	15.2	4
11.5	5	15.3	3
11.6	6	15.4	3
11.7	13	15.5	3
11.8	19	15.6	3
11.9	26	15.7	3
12.0	50	15.8	3
12.1	92	15.9	3
12.2	100	16.0	3
12.3	60	16.1	3
12.4	31	16.2	3
12.5	21	16.3	3
12.6	16	16.4	3
12.7	13	16.5	3
12.8	11	16.6	3
12.9	10	16.7	3
13.0	9	16.8	2
13.1	8	16.9	2
13.2	8	17.0	2
13.3	7	17.1	2
13.4	7	17.2	2
13.5	7	17.3	2
13.6	6	17.4	2
13.7	5	17.5	2
13.8	5	17.6	2
13.9	5	17.7	2
14.0	5	17.8	2
14.1	5	17.9	2
14.2	4	18.0	2
14.3	4	18.1	2
14.4	4	18.2	2
14.5	4	18.3	2
14.6	4	18.4	2

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	2	22.4	1
18.7	2	22.5	1
18.8	2	22.6	1
18.9	2	22.7	1
19.0	2	22.8	1
19.1	2	22.9	1
19.2	2	23.0	1
19.3	2	23.1	1
19.4	2	23.2	1
19.5	2	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	0
20.4	2	24.2	0
20.5	2	24.3	0
20.6	2	24.4	0
20.7	2	24.5	0
20.8	2	24.6	0
20.9	2	24.7	0
21.0	2	24.8	0
21.1	1	24.9	0
21.2	1	25.0	0
21.3	1	25.1	0
21.4	1	25.2	0
21.5	1	25.3	0
21.6	1	25.4	0
21.7	1	25.5	0
21.8	1	25.6	0
21.9	1	25.7	0
22.0	1	25.8	0
22.1	1	25.9	0
22.2	1		
22.3	1		

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	5.80	4.65	I.04	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 189 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	189	12.2
Composite Watershed	189	12.2

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	5	7	11	50	95	175	189	114	59
Total (cfs)	5	7	11	50	95	175	189	114	59

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	39	30	24	20	17	14	13	12	10
Total (cfs)	39	30	24	20	17	14	13	12	10

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	9	8	8	7	6	6	5	5	5
Total (cfs)	9	8	8	7	6	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	4	4	3	3	0
Total (cfs)	4	4	3	3	0

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	5	14.8	7
11.1	6	14.9	7
11.2	6	15.0	7
11.3	7	15.1	7
11.4	8	15.2	7
11.5	10	15.3	6
11.6	11	15.4	6
11.7	24	15.5	6
11.8	37	15.6	6
11.9	50	15.7	6
12.0	95	15.8	6
12.1	175	15.9	6
12.2	189	16.0	6
12.3	114	16.1	6
12.4	59	16.2	6
12.5	39	16.3	5
12.6	30	16.4	5
12.7	24	16.5	5
12.8	20	16.6	5
12.9	18	16.7	5
13.0	17	16.8	5
13.1	15	16.9	5
13.2	14	17.0	5
13.3	13	17.1	5
13.4	13	17.2	5
13.5	13	17.3	5
13.6	12	17.4	5
13.7	11	17.5	5
13.8	10	17.6	5
13.9	9	17.7	5
14.0	9	17.8	4
14.1	9	17.9	4
14.2	8	18.0	4
14.3	8	18.1	4
14.4	8	18.2	4
14.5	8	18.3	4
14.6	8	18.4	4

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	4	22.4	3
18.7	4	22.5	3
18.8	4	22.6	3
18.9	4	22.7	2
19.0	4	22.8	2
19.1	4	22.9	2
19.2	4	23.0	2
19.3	4	23.1	2
19.4	4	23.2	2
19.5	4	23.3	2
19.6	3	23.4	2
19.7	3	23.5	2
19.8	3	23.6	2
19.9	3	23.7	2
20.0	3	23.8	2
20.1	3	23.9	2
20.2	3	24.0	2
20.3	3	24.1	1
20.4	3	24.2	1
20.5	3	24.3	1
20.6	3	24.4	1
20.7	3	24.5	1
20.8	3	24.6	1
20.9	3	24.7	1
21.0	3	24.8	1
21.1	3	24.9	1
21.2	3	25.0	1
21.3	3	25.1	1
21.4	3	25.2	1
21.5	3	25.3	1
21.6	3	25.4	0
21.7	3	25.5	0
21.8	3	25.6	0
21.9	3	25.7	0
22.0	3	25.8	0
22.1	3	25.9	0
22.2	3		
22.3	3		

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	6.25	5.09	I.04	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 207 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	207	12.2
Composite Watershed	207	12.2

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	6	8	12	54	104	192	207	125	65
Total (cfs)	6	8	12	54	104	192	207	125	65

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	43	33	26	22	18	16	14	13	11
Total (cfs)	43	33	26	22	18	16	14	13	11

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	10	9	9	8	7	6	5	5	5
Total (cfs)	10	9	9	8	7	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	5	4	3	3	0
Total (cfs)	5	4	3	3	0

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	6	14.8	8
11.1	7	14.9	8
11.2	7	15.0	8
11.3	8	15.1	8
11.4	9	15.2	8
11.5	11	15.3	7
11.6	12	15.4	7
11.7	26	15.5	7
11.8	40	15.6	7
11.9	54	15.7	7
12.0	104	15.8	6
12.1	192	15.9	6
12.2	207	16.0	6
12.3	125	16.1	6
12.4	65	16.2	6
12.5	43	16.3	5
12.6	33	16.4	5
12.7	26	16.5	5
12.8	22	16.6	5
12.9	20	16.7	5
13.0	18	16.8	5
13.1	17	16.9	5
13.2	16	17.0	5
13.3	15	17.1	5
13.4	14	17.2	5
13.5	14	17.3	5
13.6	13	17.4	5
13.7	12	17.5	5
13.8	11	17.6	5
13.9	10	17.7	5
14.0	10	17.8	5
14.1	10	17.9	5
14.2	9	18.0	5
14.3	9	18.1	5
14.4	9	18.2	5
14.5	9	18.3	5
14.6	9	18.4	5

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)
18.6	4
18.7	4
18.8	4
18.9	4
19.0	4
19.1	4
19.2	4
19.3	4
19.4	4
19.5	4
19.6	3
19.7	3
19.8	3
19.9	3
20.0	3
20.1	3
20.2	3
20.3	3
20.4	3
20.5	3
20.6	3
20.7	3
20.8	3
20.9	3
21.0	3
21.1	3
21.2	3
21.3	3
21.4	3
21.5	3
21.6	3
21.7	3
21.8	3
21.9	3
22.0	3
22.1	3
22.2	3
22.3	3

Time (hrs)	Flow (cfs)
22.4	3
22.5	3
22.6	3
22.7	2
22.8	2
22.9	2
23.0	2
23.1	2
23.2	2
23.3	2
23.4	2
23.5	2
23.6	2
23.7	2
23.8	2
23.9	2
24.0	2
24.1	1
24.2	1
24.3	1
24.4	1
24.5	1
24.6	1
24.7	1
24.8	1
24.9	1
25.0	1
25.1	1
25.2	1
25.3	1
25.4	0
25.5	0
25.6	0
25.7	0
25.8	0
25.9	0

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	7.70	I	6.51	I.03	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 265 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	265	12.2
Composite Watershed	265	12.2

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	8	10	16	69	134	245	265	160	83
Total (cfs)	8	10	16	69	134	245	265	160	83

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	55	42	34	29	23	20	18	16	15
Total (cfs)	55	42	34	29	23	20	18	16	15

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	13	12	11	10	9	8	7	7	6
Total (cfs)	13	12	11	10	9	8	7	7	6

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	6	5	4	4	0
Total (cfs)	6	5	4	4	0

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	8	14.8	10
11.1	9	14.9	10
11.2	9	15.0	10
11.3	10	15.1	10
11.4	12	15.2	10
11.5	14	15.3	9
11.6	16	15.4	9
11.7	34	15.5	9
11.8	51	15.6	9
11.9	69	15.7	9
12.0	134	15.8	8
12.1	245	15.9	8
12.2	265	16.0	8
12.3	160	16.1	8
12.4	83	16.2	8
12.5	55	16.3	7
12.6	42	16.4	7
12.7	34	16.5	7
12.8	29	16.6	7
12.9	26	16.7	7
13.0	23	16.8	7
13.1	21	16.9	7
13.2	20	17.0	7
13.3	19	17.1	7
13.4	18	17.2	7
13.5	17	17.3	6
13.6	16	17.4	6
13.7	15	17.5	6
13.8	15	17.6	6
13.9	14	17.7	6
14.0	13	17.8	6
14.1	13	17.9	6
14.2	12	18.0	6
14.3	12	18.1	6
14.4	12	18.2	6
14.5	11	18.3	6
14.6	11	18.4	6

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	5	22.4	4
18.7	5	22.5	4
18.8	5	22.6	3
18.9	5	22.7	3
19.0	5	22.8	3
19.1	5	22.9	3
19.2	5	23.0	3
19.3	5	23.1	3
19.4	5	23.2	3
19.5	5	23.3	3
19.6	4	23.4	3
19.7	4	23.5	3
19.8	4	23.6	2
19.9	4	23.7	2
20.0	4	23.8	2
20.1	4	23.9	2
20.2	4	24.0	2
20.3	4	24.1	2
20.4	4	24.2	2
20.5	4	24.3	2
20.6	4	24.4	2
20.7	4	24.5	2
20.8	4	24.6	1
20.9	4	24.7	1
21.0	4	24.8	1
21.1	4	24.9	1
21.2	4	25.0	1
21.3	4	25.1	1
21.4	4	25.2	1
21.5	4	25.3	1
21.6	4	25.4	1
21.7	4	25.5	1
21.8	4	25.6	0
21.9	4	25.7	0
22.0	4	25.8	0
22.1	4	25.9	0
22.2	4		
22.3	4		

POND-2 Version: 5.17
S/N: 1295130250

STONEHOUSE LA GRANGE BMP #1

CALCULATED 10-12-1994 15:19:16
DISK FILE: b:89046-1 .VOL

Planimeter scale: 1 inch = 25 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
73.00	0.00	0	0	0	0
74.00	4.00	2,500	2,500	833	833
76.00	12.20	7,625	14,491	9,661	10,494
78.00	17.70	11,063	27,872	18,581	29,075
80.00	24.50	15,313	39,390	26,260	55,335
80.10	31.80	19,875	52,633	1,754	57,090
82.00	39.65	24,781	66,849	42,338	99,428
82.50	51.20	32,000	84,942	14,157	113,585
83.25	55.00	34,375	99,541	24,885	138,470
84.00	61.60	38,500	109,254	27,314	165,783
86.00	71.30	44,562	124,483	82,989	248,772
88.00	80.85	50,531	142,547	95,031	343,803
90.00	86.05	53,781	156,443	104,348	448,151

Elevations With Areas Interpolated From
The Closest Two Planimeter Readings

87.25	------	48,249	139,181	57,992	306,764

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
73.25	0.0	
73.75	0.0	
74.25	0.0	
74.75	0.0	
75.25	0.0	
75.75	0.0	
76.25	0.0	
76.75	0.0	
77.25	0.0	
77.75	0.0	
78.25	0.0	
78.75	0.0	
79.25	0.0	
79.75	0.0	
80.25	0.0	
80.75	0.0	
81.25	0.0	
81.75	0.0	
82.25	0.0	
82.75	0.0	
83.25	0.0	
83.75	0.5	1
84.25	0.8	1
84.75	1.1	1
85.25	1.3	1
85.75	1.4	1
86.25	1.6	1
86.75	1.7	1
87.25	1.8	1 +2
87.75	22.6	1 +2
88.25	60.5	1 +2
88.75	113.6	1 +2 +3
89.25	190.9	1 +2 +3
89.75	272.4	1 +2 +3
90.00	0.0	

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outlet Structure File: b:89046-1 .STR
Planimeter Input File: b:89046-1 .VOL
Rating Table Output File: b:89046-1 .PND

Min. Elev.(ft) = 73.25 Max. Elev.(ft) = 90.001 Incr.(ft) = .5

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
ORIFICE-VC	1		->	1
STAND PIPE	2		->	2
WEIR-XY	3		->	3

Outflow rating table summary was stored in file:
b:89046-1 .PND

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

ORIFICE-VC
Orifice - Vertical Circular

E1 elev.(ft)?	83.251
E2 elev.(ft)?	90.001
Orifice coeff.?	.6
Invert elev.(ft)?	83.25
Datum elev.(ft)?	83.50
Diameter (ft)?	.50

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 2 <<<<<<
(Input Data)

STAND PIPE
Stand Pipe with weir or orifice flow

E1 elev.(ft)?	87.25
E2 elev.(ft)?	90.001
Crest elev.(ft)?	87.25
Diameter (ft)?	6.0
Weir coefficient?	3.1
Orifice coefficient?	.6
Start transition elev.(ft) @ ?	
Transition height (ft)?	

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 3 <<<<<<
(Input Data)

WEIR-XY
Weir - Defined by X, Y Coordinates
E1 (ft) =88.5 E2 (ft) =90

X dist.(ft)	Y elev.(ft)
0	90
4.5	88.5
14.5	88.5
19	90

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #1
ORIFICE-VC Orifice - Vertical Circular

Elevation (ft)	Q (cfs)	Computation Messages
73.25	0.0	E < E1=83.251
73.75	0.0	E < E1=83.251
74.25	0.0	E < E1=83.251
74.75	0.0	E < E1=83.251
75.25	0.0	E < E1=83.251
75.75	0.0	E < E1=83.251
76.25	0.0	E < E1=83.251
76.75	0.0	E < E1=83.251
77.25	0.0	E < E1=83.251
77.75	0.0	E < E1=83.251
78.25	0.0	E < E1=83.251
78.75	0.0	E < E1=83.251
79.25	0.0	E < E1=83.251
79.75	0.0	E < E1=83.251
80.25	0.0	E < E1=83.251
80.75	0.0	E < E1=83.251
81.25	0.0	E < E1=83.251
81.75	0.0	E < E1=83.251
82.25	0.0	E < E1=83.251
82.75	0.0	E < E1=83.251
83.25	0.0	E < E1=83.251
83.75	0.5	H =.25
84.25	0.8	H =.750
84.75	1.1	H =1.25
85.25	1.3	H =1.75
85.75	1.4	H =2.25
86.25	1.6	H =2.75
86.75	1.7	H =3.25
87.25	1.8	H =3.75
87.75	1.9	H =4.25
88.25	2.1	H =4.75
88.75	2.2	H =5.25
89.25	2.3	H =5.75
89.75	2.4	H =6.25
90.00	0.0	

C = .6 A = .1963496 sq.ft.
H (ft) = Table elev. - Datum elev. (83.5 ft)
Q (cfs) = C * A * sqr(2g * H)

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #2
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
73.25	0.0	E < Inv.El.= 87.25
73.75	0.0	E < El=87.25
74.25	0.0	E < El=87.25
74.75	0.0	E < El=87.25
75.25	0.0	E < El=87.25
75.75	0.0	E < El=87.25
76.25	0.0	E < El=87.25
76.75	0.0	E < El=87.25
77.25	0.0	E < El=87.25
77.75	0.0	E < El=87.25
78.25	0.0	E < El=87.25
78.75	0.0	E < El=87.25
79.25	0.0	E < El=87.25
79.75	0.0	E < El=87.25
80.25	0.0	E < El=87.25
80.75	0.0	E < El=87.25
81.25	0.0	E < El=87.25
81.75	0.0	E < El=87.25
82.25	0.0	E < El=87.25
82.75	0.0	E < El=87.25
83.25	0.0	E < El=87.25
83.75	0.0	E < El=87.25
84.25	0.0	E < El=87.25
84.75	0.0	E < El=87.25
85.25	0.0	E < El=87.25
85.75	0.0	E < El=87.25
86.25	0.0	E < El=87.25
86.75	0.0	E < El=87.25
87.25	0.0	Weir: H =0.0
87.75	20.7	Weir: H =.5
88.25	58.4	Weir: H =1.0
88.75	107.3	Weir: H =1.5

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

>>>>> CONTINUED from previous page <<<<<

Outflow Rating Table for Structure #2
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages	
89.25	165.3	Weir:	H =2.0
89.75	215.3	Orifice:	H =2.5
90.00	0.0		

Weir Cw = 3.1 Weir length = 18.84956 ft
Orifice Co = .6 Orifice area = 28.27434 sq.ft.
Q (cfs) = (Cw * L * H**1.5) or (Co * A * sqr(2*g*H))
No transition used, transition height = 0.0
Weir equation = Orifice equation @ elev.= 89.57983 ft

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #3
WEIR-XY Weir - Defined by X, Y Coordinates

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages	
73.25	0.0	E < Y min= 88.5	
73.75	0.0	E < Y min= 88.5	
74.25	0.0	E < Y min= 88.5	
74.75	0.0	E < Y min= 88.5	
75.25	0.0	E < Y min= 88.5	
75.75	0.0	E < Y min= 88.5	
76.25	0.0	E < Y min= 88.5	
76.75	0.0	E < Y min= 88.5	
77.25	0.0	E < Y min= 88.5	
77.75	0.0	E < Y min= 88.5	
78.25	0.0	E < Y min= 88.5	
78.75	0.0	E < Y min= 88.5	
79.25	0.0	E < Y min= 88.5	
79.75	0.0	E < Y min= 88.5	
80.25	0.0	E < Y min= 88.5	
80.75	0.0	E < Y min= 88.5	
81.25	0.0	E < Y min= 88.5	
81.75	0.0	E < Y min= 88.5	
82.25	0.0	E < Y min= 88.5	
82.75	0.0	E < Y min= 88.5	
83.25	0.0	E < Y min= 88.5	
83.75	0.0	E < Y min= 88.5	
84.25	0.0	E < Y min= 88.5	
84.75	0.0	E < Y min= 88.5	
85.25	0.0	E < Y min= 88.5	
85.75	0.0	E < Y min= 88.5	
86.25	0.0	E < Y min= 88.5	
86.75	0.0	E < Y min= 88.5	
87.25	0.0	E < E1=88.5	
87.75	0.0	E < E1=88.5	
88.25	0.0	E < E1=88.5	
88.75	4.1	W(ft)=11.5	Max. D(ft)=.25
89.25	23.3	W(ft)=14.5	Max. D(ft)=.750
89.75	54.8	W(ft)=17.5	Max. D(ft)=1.25
90.00	0.0	E = or > E2=90	

MULTIPLE STORM ROUTING FOR PONDS (.MSR)

89046-2 <-- This File
Title: SCS INFLOW TO BMP 1
STONEHOUSE

Storm Comments	Return Frequency (years)	Inflow Hydrograph (.HYD)		Pond Rating Table File (.PND)		Starting W.S.Elev. (feet)		Outflow Hydrograph (.HYD)
	2	SCS2PO	-	89046-1	@	83.25	-	SCS2OUT
	10	SCS10PO	-	89046-1	@	83.25	-	SCS10OUT
	25	SCS25PO	-	89046-1	@	83.25	-	SCS25OUT
	100	SCS100PO	-	89046-1	@	83.25	-	SCS100OU
			-		@		-	

DUTPUT OPTIONS

* Input Data * Routing Computations * Routing Summary Plots

NOTE: If you are using 'Outlet Structures(.STR)' for computing your Q vs.E rating table, you must compute a PND file for use with this MSR option. If W.S. Elev. is left blank, the first elevation in PND will be used. If Outflow HYD is left blank, an outflow HYD file will not be stored.

<Esc> Exit <F5> Compute

```
*************************
*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
*************************
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Inflow Hydrograph: b:SCS2PO .HYD
Rating Table file: b:89046-1 .PND

-----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138.470 cu-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
73.25	0.0	13	0.1	0.1
73.75	0.0	352	2.0	2.0
74.25	0.0	1,519	8.4	8.4
74.75	0.0	3,282	18.2	18.2
75.25	0.0	5,643	31.3	31.3
75.75	0.0	8,688	48.3	48.3
76.25	0.0	12,449	69.2	69.2
76.75	0.0	16,663	92.6	92.6
77.25	0.0	21,296	118.3	118.3
77.75	0.0	26,368	146.5	146.5
78.25	0.0	31,902	177.2	177.2
78.75	0.0	37,933	210.7	210.7
79.25	0.0	44,485	247.1	247.1
79.75	0.0	51,579	286.5	286.5
80.25	0.0	60,098	333.9	333.9
80.75	0.0	70,531	391.8	391.8
81.25	0.0	81,597	453.3	453.3
81.75	0.0	93,317	518.4	518.4
82.25	0.0	106,055	589.2	589.2
82.75	0.0	121,682	676.0	676.0
83.25	0.0	138,470	769.3	769.3
83.75	0.5	156,334	868.5	869.0
84.25	0.8	175,500	975.0	975.8
84.75	1.1	195,488	1086.0	1087.1
85.25	1.3	216,226	1201.3	1202.6
85.75	1.4	237,729	1320.7	1322.1
86.25	1.6	260,003	1444.5	1446.1
86.75	1.7	283,014	1572.3	1574.0
87.25	1.8	306,764	1704.2	1706.0
87.75	22.6	331,266	1840.4	1863.0
88.25	60.5	356,486	1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

EXECUTED: 01-04-1995 15:20:38 Return Freq: 2 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	3.00	-----	769.3	769.3	0.00	83.25
666.0	3.00	6.0	775.2	775.3	0.03	83.28
672.0	4.00	7.0	782.1	782.2	0.06	83.31
678.0	4.00	8.0	789.9	790.1	0.10	83.35
684.0	5.00	9.0	798.6	798.9	0.15	83.40
690.0	5.00	10.0	808.2	808.6	0.20	83.45
696.0	6.00	11.0	818.7	819.2	0.25	83.50
702.0	13.00	19.0	837.0	837.7	0.34	83.59
708.0	19.00	32.0	868.0	869.0	0.50	83.75
714.0	26.00	45.0	911.8	913.0	0.62	83.96
720.0	50.00	76.0	986.1	987.8	0.83	84.30
726.0	92.00	142.0	1125.7	1128.1	1.17	84.93
732.0	100.00	192.0	1315.0	1317.7	1.40	85.73
738.0	60.00	160.0	1471.7	1475.0	1.62	86.36
744.0	31.00	91.0	1559.3	1562.7	1.69	86.71
750.0	21.00	52.0	1607.9	1611.3	1.73	86.89
756.0	16.00	37.0	1641.4	1644.9	1.75	87.02
762.0	13.00	29.0	1666.8	1670.4	1.77	87.11
768.0	11.00	24.0	1687.2	1690.8	1.79	87.19
774.0	10.00	21.0	1704.1	1708.2	2.09	87.26
780.0	9.00	19.0	1714.9	1723.1	4.06	87.30
786.0	8.00	17.0	1721.5	1731.9	5.23	87.33
792.0	8.00	16.0	1725.5	1737.5	5.97	87.35
798.0	8.00	16.0	1728.5	1741.5	6.51	87.36
804.0	7.00	15.0	1730.0	1743.5	6.77	87.37
810.0	7.00	14.0	1730.3	1744.0	6.83	87.37
816.0	6.00	13.0	1729.8	1743.3	6.74	87.37
822.0	6.00	12.0	1728.8	1741.8	6.55	87.36
828.0	5.00	11.0	1727.2	1739.8	6.27	87.36
834.0	5.00	10.0	1725.4	1737.2	5.93	87.35
840.0	5.00	10.0	1724.0	1735.4	5.69	87.34
846.0	5.00	10.0	1723.0	1734.0	5.50	87.34
852.0	4.00	9.0	1721.5	1732.0	5.24	87.33
858.0	4.00	8.0	1719.7	1729.5	4.91	87.32
864.0	4.00	8.0	1718.3	1727.7	4.67	87.32
870.0	4.00	8.0	1717.4	1726.3	4.49	87.31
876.0	4.00	8.0	1716.6	1725.4	4.36	87.31
882.0	4.00	8.0	1716.1	1724.6	4.27	87.31
888.0	4.00	8.0	1715.7	1724.1	4.19	87.31
894.0	4.00	8.0	1715.4	1723.7	4.14	87.31
900.0	4.00	8.0	1715.2	1723.4	4.11	87.31
906.0	4.00	8.0	1715.1	1723.2	4.08	87.30
912.0	4.00	8.0	1715.0	1723.1	4.06	87.30
918.0	3.00	7.0	1714.1	1722.0	3.91	87.30
924.0	3.00	6.0	1712.8	1720.1	3.67	87.29

EXECUTED: 01-04-1995 15:20:38 Return Freq: 2 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	3.00	6.0	1711.8	1718.8	3.49	87.29
936.0	3.00	6.0	1711.1	1717.8	3.36	87.29
942.0	3.00	6.0	1710.6	1717.1	3.27	87.29
948.0	3.00	6.0	1710.2	1716.6	3.19	87.28
954.0	3.00	6.0	1709.9	1716.2	3.14	87.28
960.0	3.00	6.0	1709.7	1715.9	3.11	87.28
966.0	3.00	6.0	1709.5	1715.7	3.08	87.28
972.0	3.00	6.0	1709.4	1715.5	3.06	87.28
978.0	3.00	6.0	1709.3	1715.4	3.04	87.28
984.0	3.00	6.0	1709.3	1715.3	3.03	87.28
990.0	3.00	6.0	1709.2	1715.3	3.02	87.28
996.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1002.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1008.0	2.00	5.0	1708.4	1714.2	2.88	87.28
1014.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1020.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1026.0	2.00	4.0	1705.5	1710.2	2.35	87.26
1032.0	2.00	4.0	1705.0	1709.5	2.26	87.26
1038.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1044.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1050.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1056.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1062.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1068.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1074.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1080.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1086.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1092.0	2.00	4.0	1703.6	1707.6	2.01	87.26
1098.0	2.00	4.0	1703.6	1707.6	2.01	87.26
1104.0	2.00	4.0	1703.6	1707.6	2.01	87.25
1110.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1116.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1122.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1128.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1134.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1140.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1146.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1152.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1158.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1164.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1170.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1176.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1182.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1188.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1194.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1200.0	2.00	4.0	1703.6	1707.6	2.00	87.25

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1212.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1218.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1224.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1230.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1236.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1242.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1248.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1254.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1260.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1266.0	1.00	3.0	1702.8	1706.6	1.87	87.25
1272.0	1.00	2.0	1701.2	1704.8	1.80	87.25
1278.0	1.00	2.0	1699.6	1703.2	1.80	87.24
1284.0	1.00	2.0	1698.0	1701.6	1.80	87.23
1290.0	1.00	2.0	1696.4	1700.0	1.80	87.23
1296.0	1.00	2.0	1694.9	1698.4	1.79	87.22
1302.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1308.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1314.0	1.00	2.0	1690.1	1693.7	1.79	87.20
1320.0	1.00	2.0	1688.5	1692.1	1.79	87.20
1326.0	1.00	2.0	1686.9	1690.5	1.79	87.19
1332.0	1.00	2.0	1685.4	1688.9	1.79	87.19
1338.0	1.00	2.0	1683.8	1687.4	1.79	87.18
1344.0	1.00	2.0	1682.2	1685.8	1.78	87.17
1350.0	1.00	2.0	1680.7	1684.2	1.78	87.17
1356.0	1.00	2.0	1679.1	1682.7	1.78	87.16
1362.0	1.00	2.0	1677.5	1681.1	1.78	87.16
1368.0	1.00	2.0	1676.0	1679.5	1.78	87.15
1374.0	1.00	2.0	1674.4	1678.0	1.78	87.14
1380.0	1.00	2.0	1672.9	1676.4	1.78	87.14
1386.0	1.00	2.0	1671.3	1674.9	1.78	87.13
1392.0	1.00	2.0	1669.8	1673.3	1.78	87.13
1398.0	1.00	2.0	1668.2	1671.8	1.77	87.12
1404.0	1.00	2.0	1666.7	1670.2	1.77	87.11
1410.0	1.00	2.0	1665.1	1668.7	1.77	87.11
1416.0	1.00	2.0	1663.6	1667.1	1.77	87.10
1422.0	1.00	2.0	1662.0	1665.6	1.77	87.10
1428.0	1.00	2.0	1660.5	1664.0	1.77	87.09
1434.0	1.00	2.0	1659.0	1662.5	1.77	87.09
1440.0	0.00	1.0	1656.4	1660.0	1.77	87.08
1446.0	0.00	0.0	1652.9	1656.4	1.76	87.06
1452.0	0.00	0.0	1649.4	1652.9	1.76	87.05
1458.0	0.00	0.0	1645.9	1649.4	1.76	87.04
1464.0	0.00	0.0	1642.4	1645.9	1.75	87.02
1470.0	0.00	0.0	1638.9	1642.4	1.75	87.01
1476.0	0.00	0.0	1635.4	1638.9	1.75	87.00

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	0.00	0.0	1631.9	1635.4	1.75	86.98
1488.0	0.00	0.0	1628.4	1631.9	1.74	86.97
1494.0	0.00	0.0	1624.9	1628.4	1.74	86.96
1500.0	0.00	0.0	1621.4	1624.9	1.74	86.94
1506.0	0.00	0.0	1618.0	1621.4	1.74	86.93
1512.0	0.00	0.0	1614.5	1618.0	1.73	86.92
1518.0	0.00	0.0	1611.0	1614.5	1.73	86.90
1524.0	0.00	0.0	1607.6	1611.0	1.73	86.89
1530.0	0.00	0.0	1604.1	1607.6	1.73	86.88
1536.0	0.00	0.0	1600.7	1604.1	1.72	86.86
1542.0	0.00	0.0	1597.2	1600.7	1.72	86.85
1548.0	0.00	0.0	1593.8	1597.2	1.72	86.84
1554.0	0.00	0.0	1590.4	1593.8	1.72	86.83

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 100.00 cfs
Peak Outflow = 6.83 cfs
Peak Elevation = 87.37 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 138,470 cu-ft
Peak Storage From Storm = 174,220 cu-ft

Total Storage in Pond = 312,690 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS10PO .HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
73.25	0.0	13
73.75	0.0	352
74.25	0.0	1,519
74.75	0.0	3,282
75.25	0.0	5,643
75.75	0.0	8,688
76.25	0.0	12,449
76.75	0.0	16,663
77.25	0.0	21,296
77.75	0.0	26,368
78.25	0.0	31,902
78.75	0.0	37,933
79.25	0.0	44,485
79.75	0.0	51,579
80.25	0.0	60,098
80.75	0.0	70,531
81.25	0.0	81,597
81.75	0.0	93,317
82.25	0.0	106,055
82.75	0.0	121,682
83.25	0.0	138,470
83.75	0.5	156,334
84.25	0.8	175,500
84.75	1.1	195,488
85.25	1.3	216,226
85.75	1.4	237,729
86.25	1.6	260,003
86.75	1.7	283,014
87.25	1.8	306,764
87.75	22.6	331,266
88.25	60.5	356,486

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.1	0.1
2.0	2.0
8.4	8.4
18.2	18.2
31.3	31.3
48.3	48.3
69.2	69.2
92.6	92.6
118.3	118.3
146.5	146.5
177.2	177.2
210.7	210.7
247.1	247.1
286.5	286.5
333.9	333.9
391.8	391.8
453.3	453.3
518.4	518.4
589.2	589.2
676.0	676.0
769.3	769.3
868.5	869.0
975.0	975.8
1086.0	1087.1
1201.3	1202.6
1320.7	1322.1
1444.5	1446.1
1572.3	1574.0
1704.2	1706.0
1840.4	1863.0
1980.5	2041.0

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
88.75	113.6	382,153
89.25	190.9	408,225
89.75	272.4	434,704

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
2123.1	2236.7
2267.9	2458.8
2415.0	2687.4

Time increment (t) = 6.0 min.

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	5.00	------	769.3	769.3	0.00	83.25
666.0	6.00	11.0	780.2	780.3	0.06	83.31
672.0	6.00	12.0	791.9	792.2	0.11	83.36
678.0	7.00	13.0	804.6	804.9	0.18	83.43
684.0	8.00	15.0	819.1	819.6	0.25	83.50
690.0	10.00	18.0	836.4	837.1	0.34	83.59
696.0	11.00	21.0	856.5	857.4	0.44	83.69
702.0	24.00	35.0	890.4	891.5	0.56	83.86
708.0	37.00	61.0	949.9	951.4	0.73	84.14
714.0	50.00	87.0	1035.0	1036.9	0.96	84.52
720.0	95.00	145.0	1177.5	1180.0	1.26	85.15
726.0	175.00	270.0	1444.3	1447.5	1.60	86.26
732.0	189.00	364.0	1777.6	1808.3	15.35	87.58
738.0	114.00	303.0	1938.1	2080.6	71.24	88.35
744.0	59.00	173.0	1952.0	2111.1	79.52	88.43
750.0	39.00	98.0	1924.1	2050.0	62.96	88.27
756.0	30.00	69.0	1892.5	1993.1	50.31	88.12
762.0	24.00	54.0	1865.7	1946.5	40.38	87.98
768.0	20.00	44.0	1844.6	1909.7	32.56	87.88
774.0	18.00	38.0	1829.1	1882.6	26.78	87.81
780.0	17.00	35.0	1818.4	1864.1	22.83	87.75
786.0	16.00	33.0	1809.3	1851.4	21.07	87.71
792.0	14.00	30.0	1800.3	1839.3	19.46	87.67
798.0	14.00	28.0	1792.3	1828.3	18.01	87.64
804.0	13.00	27.0	1785.7	1819.3	16.81	87.61
810.0	12.00	25.0	1779.4	1810.7	15.67	87.58
816.0	12.00	24.0	1774.0	1803.4	14.70	87.56
822.0	11.00	23.0	1769.3	1797.0	13.85	87.54
828.0	10.00	21.0	1764.3	1790.3	12.96	87.52
834.0	9.00	19.0	1759.2	1783.3	12.04	87.50
840.0	9.00	18.0	1754.8	1777.2	11.24	87.48
846.0	9.00	18.0	1751.5	1772.8	10.64	87.46
852.0	8.00	17.0	1748.3	1768.5	10.08	87.45
858.0	8.00	16.0	1745.3	1764.3	9.53	87.44
864.0	8.00	16.0	1743.0	1761.3	9.12	87.43
870.0	8.00	16.0	1741.4	1759.0	8.82	87.42
876.0	8.00	16.0	1740.2	1757.4	8.61	87.41
882.0	8.00	16.0	1739.3	1756.2	8.44	87.41
888.0	8.00	16.0	1738.6	1755.3	8.33	87.41
894.0	7.00	15.0	1737.4	1753.6	8.11	87.40
900.0	7.00	14.0	1735.8	1751.4	7.81	87.39
906.0	7.00	14.0	1734.6	1749.8	7.60	87.39
912.0	7.00	14.0	1733.7	1748.6	7.44	87.39
918.0	6.00	13.0	1732.3	1746.7	7.19	87.38
924.0	6.00	12.0	1730.6	1744.3	6.87	87.37

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	6.00	12.0	1729.3	1742.6	6.64	87.37
936.0	6.00	12.0	1728.4	1741.3	6.47	87.36
942.0	6.00	12.0	1727.7	1740.4	6.35	87.36
948.0	6.00	12.0	1727.1	1739.7	6.26	87.36
954.0	6.00	12.0	1726.8	1739.1	6.19	87.36
960.0	6.00	12.0	1726.5	1738.8	6.14	87.35
966.0	6.00	12.0	1726.3	1738.5	6.10	87.35
972.0	6.00	12.0	1726.1	1738.3	6.07	87.35
978.0	5.00	11.0	1725.3	1737.1	5.92	87.35
984.0	5.00	10.0	1723.9	1735.3	5.68	87.34
990.0	5.00	10.0	1722.9	1733.9	5.50	87.34
996.0	5.00	10.0	1722.2	1732.9	5.37	87.34
1002.0	5.00	10.0	1721.7	1732.2	5.27	87.33
1008.0	5.00	10.0	1721.3	1731.7	5.20	87.33
1014.0	5.00	10.0	1721.0	1731.3	5.15	87.33
1020.0	5.00	10.0	1720.8	1731.0	5.11	87.33
1026.0	5.00	10.0	1720.6	1730.8	5.08	87.33
1032.0	5.00	10.0	1720.5	1730.6	5.06	87.33
1038.0	5.00	10.0	1720.4	1730.5	5.04	87.33
1044.0	5.00	10.0	1720.4	1730.4	5.03	87.33
1050.0	5.00	10.0	1720.3	1730.4	5.02	87.33
1056.0	5.00	10.0	1720.3	1730.3	5.02	87.33
1062.0	5.00	10.0	1720.3	1730.3	5.01	87.33
1068.0	4.00	9.0	1719.5	1729.3	4.88	87.32
1074.0	4.00	8.0	1718.2	1727.5	4.64	87.32
1080.0	4.00	8.0	1717.3	1726.2	4.47	87.31
1086.0	4.00	8.0	1716.6	1725.3	4.35	87.31
1092.0	4.00	8.0	1716.1	1724.6	4.26	87.31
1098.0	4.00	8.0	1715.7	1724.1	4.19	87.31
1104.0	4.00	8.0	1715.4	1723.7	4.14	87.31
1110.0	4.00	8.0	1715.2	1723.4	4.10	87.31
1116.0	4.00	8.0	1715.1	1723.2	4.07	87.30
1122.0	4.00	8.0	1714.9	1723.1	4.05	87.30
1128.0	4.00	8.0	1714.9	1722.9	4.04	87.30
1134.0	4.00	8.0	1714.8	1722.9	4.03	87.30
1140.0	4.00	8.0	1714.8	1722.8	4.02	87.30
1146.0	4.00	8.0	1714.7	1722.8	4.02	87.30
1152.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1158.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1164.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1170.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1176.0	3.00	7.0	1713.9	1721.7	3.87	87.30
1182.0	3.00	6.0	1712.6	1719.9	3.64	87.29
1188.0	3.00	6.0	1711.7	1718.6	3.47	87.29
1194.0	3.00	6.0	1711.0	1717.7	3.35	87.29
1200.0	3.00	6.0	1710.5	1717.0	3.25	87.28

EXECUTED: 01-04-1995 15:22:47 Return Freq: 10 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	3.00	6.0	1710.1	1716.5	3.19	87.28
1212.0	3.00	6.0	1709.9	1716.1	3.14	87.28
1218.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1224.0	3.00	6.0	1709.5	1715.7	3.07	87.28
1230.0	3.00	6.0	1709.4	1715.5	3.05	87.28
1236.0	3.00	6.0	1709.3	1715.4	3.04	87.28
1242.0	3.00	6.0	1709.3	1715.3	3.03	87.28
1248.0	3.00	6.0	1709.2	1715.3	3.02	87.28
1254.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1260.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1266.0	3.00	6.0	1709.1	1715.2	3.01	87.28
1272.0	3.00	6.0	1709.1	1715.1	3.01	87.28
1278.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1284.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1290.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1296.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1302.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1308.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1314.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1320.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1326.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1332.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1338.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1344.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1350.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1356.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1362.0	2.00	5.0	1708.4	1714.1	2.87	87.28
1368.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1374.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1380.0	2.00	4.0	1705.5	1710.2	2.34	87.26
1386.0	2.00	4.0	1705.0	1709.5	2.25	87.26
1392.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1398.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1404.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1410.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1416.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1422.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1428.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1434.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1440.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1446.0	1.00	3.0	1702.9	1706.6	1.88	87.25
1452.0	1.00	2.0	1701.3	1704.9	1.80	87.25
1458.0	1.00	2.0	1699.7	1703.3	1.80	87.24
1464.0	1.00	2.0	1698.1	1701.7	1.80	87.23
1470.0	1.00	2.0	1696.5	1700.1	1.80	87.23
1476.0	1.00	2.0	1694.9	1698.5	1.79	87.22

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1488.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1494.0	1.00	2.0	1690.2	1693.7	1.79	87.20
1500.0	1.00	2.0	1688.6	1692.2	1.79	87.20
1506.0	1.00	2.0	1687.0	1690.6	1.79	87.19
1512.0	1.00	2.0	1685.4	1689.0	1.79	87.19
1518.0	1.00	2.0	1683.9	1687.4	1.79	87.18
1524.0	0.00	1.0	1681.3	1684.9	1.78	87.17
1530.0	0.00	0.0	1677.7	1681.3	1.78	87.16
1536.0	0.00	0.0	1674.2	1677.7	1.78	87.14
1542.0	0.00	0.0	1670.6	1674.2	1.78	87.13
1548.0	0.00	0.0	1667.1	1670.6	1.77	87.12
1554.0	0.00	0.0	1663.5	1667.1	1.77	87.10

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 189.00 cfs
Peak Outflow = 79.52 cfs
Peak Elevation = 88.43 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	138,470 cu-ft
Peak Storage From Storm	=	227,211 cu-ft
Total Storage in Pond	=	365,681 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*************************
*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS25PO .HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
73.25	0.0	13
73.75	0.0	352
74.25	0.0	1,519
74.75	0.0	3,282
75.25	0.0	5,643
75.75	0.0	8,688
76.25	0.0	12,449
76.75	0.0	16,663
77.25	0.0	21,296
77.75	0.0	26,368
78.25	0.0	31,902
78.75	0.0	37,933
79.25	0.0	44,485
79.75	0.0	51,579
80.25	0.0	60,098
80.75	0.0	70,531
81.25	0.0	81,597
81.75	0.0	93,317
82.25	0.0	106,055
82.75	0.0	121,682
83.25	0.0	138,470
83.75	0.5	156,334
84.25	0.8	175,500
84.75	1.1	195,488
85.25	1.3	216,226
85.75	1.4	237,729
86.25	1.6	260,003
86.75	1.7	283,014
87.25	1.8	306,764
87.75	22.6	331,266
88.25	60.5	356,486

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.1	0.1
2.0	2.0
8.4	8.4
18.2	18.2
31.3	31.3
48.3	48.3
69.2	69.2
92.6	92.6
118.3	118.3
146.5	146.5
177.2	177.2
210.7	210.7
247.1	247.1
286.5	286.5
333.9	333.9
391.8	391.8
453.3	453.3
518.4	518.4
589.2	589.2
676.0	676.0
769.3	769.3
868.5	869.0
975.0	975.8
1086.0	1087.1
1201.3	1202.6
1320.7	1322.1
1444.5	1446.1
1572.3	1574.0
1704.2	1706.0
1840.4	1863.0
1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

EXECUTED: 01-04-1995 15:25:25 Return Freq: 25 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	6.00	-----	769.3	769.3	0.00	83.25
666.0	7.00	13.0	782.1	782.3	0.07	83.32
672.0	7.00	14.0	795.9	796.1	0.13	83.38
678.0	8.00	15.0	810.5	810.9	0.21	83.46
684.0	9.00	17.0	826.9	827.5	0.29	83.54
690.0	11.00	20.0	846.1	846.9	0.39	83.64
696.0	12.00	23.0	868.1	869.1	0.50	83.75
702.0	26.00	38.0	904.9	906.1	0.60	83.92
708.0	40.00	66.0	969.3	970.9	0.79	84.23
714.0	54.00	94.0	1061.2	1063.3	1.04	84.64
720.0	104.00	158.0	1216.6	1219.2	1.31	85.32
726.0	192.00	296.0	1509.3	1512.6	1.65	86.51
732.0	207.00	399.0	1843.8	1908.3	32.25	87.88
738.0	125.00	332.0	1981.6	2175.8	97.08	88.59
744.0	65.00	190.0	1979.7	2171.6	95.95	88.58
750.0	43.00	108.0	1941.4	2087.7	73.19	88.37
756.0	33.00	76.0	1906.4	2017.4	55.47	88.18
762.0	26.00	59.0	1876.6	1965.4	44.41	88.04
768.0	22.00	48.0	1853.2	1924.6	35.72	87.92
774.0	20.00	42.0	1836.2	1895.2	29.45	87.84
780.0	18.00	38.0	1824.2	1874.2	25.00	87.78
786.0	17.00	35.0	1815.0	1859.2	22.11	87.74
792.0	16.00	33.0	1806.8	1848.0	20.62	87.70
798.0	15.00	31.0	1799.3	1837.8	19.26	87.67
804.0	14.00	29.0	1792.3	1828.3	18.00	87.64
810.0	14.00	28.0	1786.4	1820.3	16.94	87.61
816.0	13.00	27.0	1781.3	1813.4	16.03	87.59
822.0	12.00	25.0	1776.1	1806.3	15.09	87.57
828.0	11.00	23.0	1770.9	1799.1	14.14	87.55
834.0	10.00	21.0	1765.5	1791.9	13.18	87.52
840.0	10.00	20.0	1760.8	1785.5	12.33	87.50
846.0	10.00	20.0	1757.4	1780.8	11.71	87.49
852.0	9.00	19.0	1754.2	1776.4	11.13	87.47
858.0	9.00	18.0	1751.0	1772.2	10.56	87.46
864.0	9.00	18.0	1748.7	1769.0	10.15	87.45
870.0	9.00	18.0	1747.0	1766.7	9.84	87.44
876.0	9.00	18.0	1745.8	1765.0	9.62	87.44
882.0	9.00	18.0	1744.9	1763.8	9.46	87.43
888.0	8.00	17.0	1743.5	1761.9	9.20	87.43
894.0	8.00	16.0	1741.7	1759.5	8.88	87.42
900.0	8.00	16.0	1740.4	1757.7	8.65	87.41
906.0	8.00	16.0	1739.5	1756.4	8.48	87.41
912.0	8.00	16.0	1738.8	1755.5	8.35	87.41
918.0	7.00	15.0	1737.5	1753.8	8.13	87.40
924.0	7.00	14.0	1735.9	1751.5	7.83	87.39

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	7.00	14.0	1734.6	1749.9	7.61	87.39
936.0	7.00	14.0	1733.8	1748.6	7.45	87.39
942.0	7.00	14.0	1733.1	1747.8	7.33	87.38
948.0	6.00	13.0	1731.9	1746.1	7.11	87.38
954.0	6.00	12.0	1730.2	1743.9	6.81	87.37
960.0	6.00	12.0	1729.1	1742.2	6.60	87.37
966.0	6.00	12.0	1728.2	1741.1	6.44	87.36
972.0	6.00	12.0	1727.5	1740.2	6.32	87.36
978.0	5.00	11.0	1726.3	1738.5	6.11	87.35
984.0	5.00	10.0	1724.7	1736.3	5.81	87.35
990.0	5.00	10.0	1723.5	1734.7	5.60	87.34
996.0	5.00	10.0	1722.6	1733.5	5.44	87.34
1002.0	5.00	10.0	1722.0	1732.6	5.32	87.33
1008.0	5.00	10.0	1721.5	1732.0	5.24	87.33
1014.0	5.00	10.0	1721.2	1731.5	5.17	87.33
1020.0	5.00	10.0	1720.9	1731.2	5.13	87.33
1026.0	5.00	10.0	1720.7	1730.9	5.09	87.33
1032.0	5.00	10.0	1720.6	1730.7	5.07	87.33
1038.0	5.00	10.0	1720.5	1730.6	5.05	87.33
1044.0	5.00	10.0	1720.4	1730.5	5.04	87.33
1050.0	5.00	10.0	1720.3	1730.4	5.03	87.33
1056.0	5.00	10.0	1720.3	1730.3	5.02	87.33
1062.0	5.00	10.0	1720.3	1730.3	5.01	87.33
1068.0	5.00	10.0	1720.2	1730.3	5.01	87.33
1074.0	5.00	10.0	1720.2	1730.2	5.01	87.33
1080.0	5.00	10.0	1720.2	1730.2	5.01	87.33
1086.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1092.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1098.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1104.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1110.0	4.00	9.0	1719.5	1729.2	4.87	87.32
1116.0	4.00	8.0	1718.2	1727.5	4.64	87.32
1122.0	4.00	8.0	1717.2	1726.2	4.47	87.31
1128.0	4.00	8.0	1716.6	1725.2	4.34	87.31
1134.0	4.00	8.0	1716.0	1724.6	4.25	87.31
1140.0	4.00	8.0	1715.7	1724.0	4.19	87.31
1146.0	4.00	8.0	1715.4	1723.7	4.14	87.31
1152.0	4.00	8.0	1715.2	1723.4	4.10	87.31
1158.0	4.00	8.0	1715.1	1723.2	4.07	87.30
1164.0	4.00	8.0	1714.9	1723.1	4.05	87.30
1170.0	4.00	8.0	1714.9	1722.9	4.04	87.30
1176.0	3.00	7.0	1714.1	1721.9	3.90	87.30
1182.0	3.00	6.0	1712.8	1720.1	3.66	87.29
1188.0	3.00	6.0	1711.8	1718.8	3.48	87.29
1194.0	3.00	6.0	1711.1	1717.8	3.36	87.29
1200.0	3.00	6.0	1710.5	1717.1	3.26	87.29

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	3.00	6.0	1710.2	1716.5	3.19	87.28
1212.0	3.00	6.0	1709.9	1716.2	3.14	87.28
1218.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1224.0	3.00	6.0	1709.5	1715.7	3.08	87.28
1230.0	3.00	6.0	1709.4	1715.5	3.06	87.28
1236.0	3.00	6.0	1709.3	1715.4	3.04	87.28
1242.0	3.00	6.0	1709.3	1715.3	3.03	87.28
1248.0	3.00	6.0	1709.2	1715.3	3.02	87.28
1254.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1260.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1266.0	3.00	6.0	1709.1	1715.2	3.01	87.28
1272.0	3.00	6.0	1709.1	1715.1	3.01	87.28
1278.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1284.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1290.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1296.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1302.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1308.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1314.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1320.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1326.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1332.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1338.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1344.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1350.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1356.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1362.0	2.00	5.0	1708.4	1714.1	2.87	87.28
1368.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1374.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1380.0	2.00	4.0	1705.5	1710.2	2.34	87.26
1386.0	2.00	4.0	1705.0	1709.5	2.25	87.26
1392.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1398.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1404.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1410.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1416.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1422.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1428.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1434.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1440.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1446.0	1.00	3.0	1702.9	1706.6	1.88	87.25
1452.0	1.00	2.0	1701.3	1704.9	1.80	87.25
1458.0	1.00	2.0	1699.7	1703.3	1.80	87.24
1464.0	1.00	2.0	1698.1	1701.7	1.80	87.23
1470.0	1.00	2.0	1696.5	1700.1	1.80	87.23
1476.0	1.00	2.0	1694.9	1698.5	1.79	87.22

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1488.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1494.0	1.00	2.0	1690.2	1693.7	1.79	87.20
1500.0	1.00	2.0	1688.6	1692.2	1.79	87.20
1506.0	1.00	2.0	1687.0	1690.6	1.79	87.19
1512.0	1.00	2.0	1685.4	1689.0	1.79	87.19
1518.0	1.00	2.0	1683.9	1687.4	1.79	87.18
1524.0	0.00	1.0	1681.3	1684.9	1.78	87.17
1530.0	0.00	0.0	1677.7	1681.3	1.78	87.16
1536.0	0.00	0.0	1674.2	1677.7	1.78	87.14
1542.0	0.00	0.0	1670.6	1674.2	1.78	87.13
1548.0	0.00	0.0	1667.1	1670.6	1.77	87.12
1554.0	0.00	0.0	1663.5	1667.1	1.77	87.10

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	207.00 cfs
Peak Outflow	=	97.08 cfs
Peak Elevation	=	88.59 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	138,470 cu-ft
Peak Storage From Storm	=	235,700 cu-ft
Total Storage in Pond	=	374,170 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS100PO.HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
73.25	0.0	13	0.1	0.1
73.75	0.0	352	2.0	2.0
74.25	0.0	1,519	8.4	8.4
74.75	0.0	3,282	18.2	18.2
75.25	0.0	5,643	31.3	31.3
75.75	0.0	8,688	48.3	48.3
76.25	0.0	12,449	69.2	69.2
76.75	0.0	16,663	92.6	92.6
77.25	0.0	21,296	118.3	118.3
77.75	0.0	26,368	146.5	146.5
78.25	0.0	31,902	177.2	177.2
78.75	0.0	37,933	210.7	210.7
79.25	0.0	44,485	247.1	247.1
79.75	0.0	51,579	286.5	286.5
80.25	0.0	60,098	333.9	333.9
80.75	0.0	70,531	391.8	391.8
81.25	0.0	81,597	453.3	453.3
81.75	0.0	93,317	518.4	518.4
82.25	0.0	106,055	589.2	589.2
82.75	0.0	121,682	676.0	676.0
83.25	0.0	138,470	769.3	769.3
83.75	0.5	156,334	868.5	869.0
84.25	0.8	175,500	975.0	975.8
84.75	1.1	195,488	1086.0	1087.1
85.25	1.3	216,226	1201.3	1202.6
85.75	1.4	237,729	1320.7	1322.1
86.25	1.6	260,003	1444.5	1446.1
86.75	1.7	283,014	1572.3	1574.0
87.25	1.8	306,764	1704.2	1706.0
87.75	22.6	331,266	1840.4	1863.0
88.25	60.5	356,486	1980.5	2041.0

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
88.75	113.6	382,153
89.25	190.9	408,225
89.75	272.4	434,704

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
2123.1	2236.7
2267.9	2458.8
2415.0	2687.4

Time increment (t) = 6.0 min.

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS1000U.HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	8.00	-----	769.3	769.3	0.00	83.25
666.0	9.00	17.0	786.1	786.3	0.09	83.34
672.0	9.00	18.0	803.8	804.1	0.17	83.42
678.0	10.00	19.0	822.2	822.8	0.27	83.52
684.0	12.00	22.0	843.5	844.2	0.39	83.63
690.0	14.00	26.0	868.5	869.5	0.50	83.75
696.0	16.00	30.0	897.3	898.5	0.58	83.89
702.0	34.00	50.0	945.9	947.3	0.72	84.12
708.0	51.00	85.0	1029.0	1030.9	0.95	84.50
714.0	69.00	120.0	1146.6	1149.0	1.21	85.02
720.0	134.00	203.0	1346.7	1349.6	1.44	85.86
726.0	245.00	379.0	1716.9	1725.7	4.40	87.31
732.0	265.00	510.0	2005.0	2226.9	110.94	88.72
738.0	160.00	425.0	2068.2	2430.0	180.87	89.19
744.0	83.00	243.0	2032.1	2311.2	139.55	88.92
750.0	55.00	138.0	1979.0	2170.1	95.55	88.58
756.0	42.00	97.0	1936.0	2076.0	70.02	88.34
762.0	34.00	76.0	1903.3	2012.0	54.33	88.17
768.0	29.00	63.0	1877.1	1966.3	44.61	88.04
774.0	26.00	55.0	1857.5	1932.1	37.32	87.94
780.0	23.00	49.0	1842.8	1906.5	31.86	87.87
786.0	22.00	45.0	1832.0	1887.8	27.88	87.82
792.0	20.00	42.0	1824.1	1874.0	24.95	87.78
798.0	19.00	39.0	1817.8	1863.1	22.63	87.75
804.0	18.00	37.0	1811.8	1854.8	21.52	87.72
810.0	17.00	35.0	1805.9	1846.8	20.46	87.70
816.0	16.00	33.0	1800.1	1838.9	19.41	87.67
822.0	16.00	32.0	1795.1	1832.1	18.50	87.65
828.0	15.00	31.0	1790.6	1826.1	17.71	87.63
834.0	14.00	29.0	1785.9	1819.6	16.86	87.61
840.0	13.00	27.0	1781.0	1812.9	15.97	87.59
846.0	13.00	26.0	1776.6	1807.0	15.18	87.57
852.0	12.00	25.0	1772.7	1801.6	14.47	87.55
858.0	12.00	24.0	1769.1	1796.7	13.82	87.54
864.0	12.00	24.0	1766.4	1793.1	13.33	87.53
870.0	11.00	23.0	1763.7	1789.4	12.85	87.52
876.0	11.00	22.0	1761.0	1785.7	12.36	87.50
882.0	11.00	22.0	1759.0	1783.0	12.00	87.50
888.0	10.00	21.0	1756.8	1780.0	11.60	87.49
894.0	10.00	20.0	1754.4	1776.8	11.18	87.48
900.0	10.00	20.0	1752.7	1774.4	10.86	87.47
906.0	10.00	20.0	1751.4	1772.7	10.64	87.46
912.0	10.00	20.0	1750.5	1771.4	10.47	87.46
918.0	9.00	19.0	1749.1	1769.5	10.21	87.45
924.0	9.00	18.0	1747.3	1767.1	9.89	87.44

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PD.HYD
Outflow Hydrograph: b:SCS100OU.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	9.00	18.0	1746.0	1765.3	9.65	87.44
936.0	9.00	18.0	1745.0	1764.0	9.48	87.43
942.0	9.00	18.0	1744.3	1763.0	9.35	87.43
948.0	8.00	17.0	1743.1	1761.3	9.13	87.43
954.0	8.00	16.0	1741.4	1759.1	8.83	87.42
960.0	8.00	16.0	1740.2	1757.4	8.61	87.41
966.0	8.00	16.0	1739.3	1756.2	8.45	87.41
972.0	8.00	16.0	1738.6	1755.3	8.33	87.41
978.0	7.00	15.0	1737.4	1753.6	8.11	87.40
984.0	7.00	14.0	1735.8	1751.4	7.82	87.39
990.0	7.00	14.0	1734.6	1749.8	7.60	87.39
996.0	7.00	14.0	1733.7	1748.6	7.44	87.39
1002.0	7.00	14.0	1733.1	1747.7	7.32	87.38
1008.0	7.00	14.0	1732.6	1747.1	7.24	87.38
1014.0	7.00	14.0	1732.2	1746.6	7.17	87.38
1020.0	7.00	14.0	1732.0	1746.2	7.13	87.38
1026.0	7.00	14.0	1731.8	1746.0	7.09	87.38
1032.0	7.00	14.0	1731.7	1745.8	7.07	87.38
1038.0	6.00	13.0	1730.8	1744.7	6.92	87.37
1044.0	6.00	12.0	1729.5	1742.8	6.67	87.37
1050.0	6.00	12.0	1728.5	1741.5	6.50	87.36
1056.0	6.00	12.0	1727.8	1740.5	6.36	87.36
1062.0	6.00	12.0	1727.2	1739.8	6.27	87.36
1068.0	6.00	12.0	1726.8	1739.2	6.20	87.36
1074.0	6.00	12.0	1726.5	1738.8	6.14	87.35
1080.0	6.00	12.0	1726.3	1738.5	6.11	87.35
1086.0	6.00	12.0	1726.2	1738.3	6.08	87.35
1092.0	6.00	12.0	1726.0	1738.2	6.06	87.35
1098.0	6.00	12.0	1726.0	1738.0	6.04	87.35
1104.0	6.00	12.0	1725.9	1738.0	6.03	87.35
1110.0	6.00	12.0	1725.9	1737.9	6.02	87.35
1116.0	5.00	11.0	1725.1	1736.9	5.88	87.35
1122.0	5.00	10.0	1723.8	1735.1	5.65	87.34
1128.0	5.00	10.0	1722.8	1733.8	5.48	87.34
1134.0	5.00	10.0	1722.1	1732.8	5.35	87.34
1140.0	5.00	10.0	1721.6	1732.1	5.26	87.33
1146.0	5.00	10.0	1721.2	1731.6	5.19	87.33
1152.0	5.00	10.0	1721.0	1731.2	5.14	87.33
1158.0	5.00	10.0	1720.8	1731.0	5.10	87.33
1164.0	5.00	10.0	1720.6	1730.8	5.08	87.33
1170.0	4.00	9.0	1719.8	1729.6	4.92	87.33
1176.0	4.00	8.0	1718.4	1727.8	4.68	87.32
1182.0	4.00	8.0	1717.4	1726.4	4.50	87.31
1188.0	4.00	8.0	1716.7	1725.4	4.37	87.31
1194.0	4.00	8.0	1716.1	1724.7	4.27	87.31
1200.0	4.00	8.0	1715.7	1724.1	4.20	87.31

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	4.00	8.0	1715.4	1723.7	4.15	87.31
1212.0	4.00	8.0	1715.2	1723.4	4.11	87.31
1218.0	4.00	8.0	1715.1	1723.2	4.08	87.30
1224.0	4.00	8.0	1715.0	1723.1	4.06	87.30
1230.0	4.00	8.0	1714.9	1723.0	4.04	87.30
1236.0	4.00	8.0	1714.8	1722.9	4.03	87.30
1242.0	4.00	8.0	1714.8	1722.8	4.02	87.30
1248.0	4.00	8.0	1714.7	1722.8	4.02	87.30
1254.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1260.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1266.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1272.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1278.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1284.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1290.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1296.0	4.00	8.0	1714.6	1722.7	4.00	87.30
1302.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1308.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1314.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1320.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1326.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1332.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1338.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1344.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1350.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1356.0	3.00	7.0	1713.9	1721.6	3.87	87.30
1362.0	3.00	6.0	1712.6	1719.9	3.64	87.29
1368.0	3.00	6.0	1711.7	1718.6	3.47	87.29
1374.0	3.00	6.0	1711.0	1717.7	3.34	87.29
1380.0	3.00	6.0	1710.5	1717.0	3.25	87.28
1386.0	3.00	6.0	1710.1	1716.5	3.19	87.28
1392.0	3.00	6.0	1709.9	1716.1	3.14	87.28
1398.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1404.0	3.00	6.0	1709.5	1715.7	3.07	87.28
1410.0	2.00	5.0	1708.7	1714.5	2.92	87.28
1416.0	2.00	4.0	1707.3	1712.7	2.68	87.27
1422.0	2.00	4.0	1706.3	1711.3	2.50	87.27
1428.0	2.00	4.0	1705.6	1710.3	2.37	87.26
1434.0	2.00	4.0	1705.0	1709.6	2.27	87.26
1440.0	2.00	4.0	1704.6	1709.0	2.20	87.26
1446.0	2.00	4.0	1704.4	1708.6	2.15	87.26
1452.0	2.00	4.0	1704.1	1708.4	2.11	87.26
1458.0	2.00	4.0	1704.0	1708.1	2.08	87.26
1464.0	2.00	4.0	1703.9	1708.0	2.06	87.26
1470.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1476.0	1.00	3.0	1703.0	1706.8	1.90	87.25

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PD.HYD
Outflow Hydrograph: b:SCS1000U.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1701.4	1705.0	1.80	87.25
1488.0	1.00	2.0	1699.8	1703.4	1.80	87.24
1494.0	1.00	2.0	1698.2	1701.8	1.80	87.23
1500.0	1.00	2.0	1696.6	1700.2	1.80	87.23
1506.0	1.00	2.0	1695.0	1698.6	1.79	87.22
1512.0	1.00	2.0	1693.4	1697.0	1.79	87.22
1518.0	1.00	2.0	1691.9	1695.4	1.79	87.21
1524.0	1.00	2.0	1690.3	1693.9	1.79	87.20
1530.0	0.00	1.0	1687.7	1691.3	1.79	87.19
1536.0	0.00	0.0	1684.1	1687.7	1.79	87.18
1542.0	0.00	0.0	1680.6	1684.1	1.78	87.17
1548.0	0.00	0.0	1677.0	1680.6	1.78	87.15
1554.0	0.00	0.0	1673.4	1677.0	1.78	87.14

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 265.00 cfs
Peak Outflow = 180.87 cfs
Peak Elevation = 89.19 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 138,470 cu-ft
Peak Storage From Storm = 266,371 cu-ft

Total Storage in Pond = 404,841 cu-ft

Warning: Inflow hydrograph truncated on left side.

TABLE 3.14-B
PIPE FLOW CHART, n = 0.013

FOR REINFORCED CONCRETE PIPE INLET $K_m = K_e + K_b = 0.65$ AND 70 FEET OF REINFORCED CONCRETE PIPE CONDUIT (full flow assumed)

Note correction factors for pipe lengths other than 70 feet

diameter of pipe in inches

H, in feet	12"	15"	18"	21"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"
1	3.22	5.44	8.29	11.8	15.9	26.0	38.6	53.8	71.4	91.5	114	139	167	197	229	264	302	342
2	4.55	7.69	11.7	16.7	22.5	36.8	54.6	76.0	101	129	161	197	236	278	324	374	427	483
3	5.57	9.42	14.4	20.4	27.5	45.0	66.9	93.1	124	159	198	241	289	341	397	458	523	592
4	6.43	10.9	16.6	23.5	31.8	52.0	77.3	108	143	183	228	278	334	394	459	529	604	683
5	7.19	12.2	18.5	26.3	35.5	58.1	86.4	120	160	205	255	311	373	440	513	591	675	764
6	7.88	13.3	20.3	28.8	38.9	63.7	94.6	132	175	224	280	341	409	482	562	647	739	837
7	8.51	14.4	21.9	31.1	42.0	68.8	102	142	189	242	302	368	441	521	607	699	798	904
8	9.10	15.4	23.5	33.3	44.9	73.5	109	152	202	259	323	394	472	557	685	748	854	966
9	9.65	16.3	24.9	35.3	47.7	78.0	116	161	214	275	342	418	500	590	688	793	905	1025
10	10.2	17.2	26.2	37.2	50.2	82.2	122	170	226	289	361	440	527	622	725	836	954	1080
11	10.7	18.0	27.5	39.0	52.7	86.2	128	178	237	304	379	462	553	653	761	877	1001	1133
12	11.1	18.9	28.7	40.8	55.0	90.1	134	186	247	317	395	482	578	682	794	916	1045	1184
13	11.6	19.6	29.9	42.4	57.3	93.7	139	194	257	330	411	502	601	710	827	953	1088	1232
14	12.0	20.4	31.0	44.1	59.4	97.3	145	201	267	342	427	521	624	736	858	989	1129	1278
15	12.5	21.1	32.1	45.6	61.5	101	150	208	277	354	442	539	646	762	888	1024	1169	1323
16	12.9	21.8	33.2	47.1	63.5	104	155	215	286	366	457	557	667	787	917	1057	1207	1367
17	13.3	22.4	34.2	48.5	65.5	107	159	222	294	377	471	574	688	812	946	1090	1244	1409
18	13.7	23.1	35.2	49.9	67.4	110	164	228	303	388	484	591	708	835	973	1121	1280	1450
19	14.0	23.7	36.1	51.3	69.2	113	168	234	311	399	497	607	727	858	1000	1152	1315	1489
20	14.4	24.3	37.1	52.6	71.0	116	173	240	319	409	510	623	746	880	1026	1182	1350	1528
21	14.7	24.9	38.0	53.9	72.8	119	177	246	327	419	523	638	764	902	1051	1211	1383	1566
22	15.1	25.5	38.9	55.2	74.5	122	181	252	335	429	535	653	782	923	1076	1240	1415	1603
23	15.4	26.1	39.8	56.5	76.2	125	186	258	342	439	547	668	800	944	1100	1268	1447	1639
24	15.8	26.7	40.6	57.7	77.8	127	189	263	350	448	559	682	817	964	1123	1295	1478	1674
25	16.1	27.2	41.5	58.9	79.4	130	193	269	357	458	571	696	834	984	1147	1322	1509	1708
26	16.4	27.7	42.3	60.0	81.0	133	197	274	364	467	582	710	850	1004	1169	1348	1539	1742
27	16.7	28.3	43.1	61.2	82.5	135	201	279	371	476	593	723	867	1023	1192	1373	1568	1775
28	17.0	28.8	43.9	62.3	84.1	138	204	285	378	484	604	737	883	1041	1214	1399	1597	1808
29	17.3	29.3	44.7	63.4	85.5	140	208	290	384	493	615	750	898	1060	1235	1423	1625	1840
30	17.6	29.8	45.4	64.5	87.0	142	212	294	391	501	625	763	913	1078	1256	1448	1653	1871
L, in feet	Correction Factors For Other Pipe Lengths																	
20	1.30	1.24	1.21	1.18	1.15	1.12	1.10	1.08	1.07	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.03
30	1.22	1.18	1.15	1.13	1.12	1.09	1.08	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02
40	1.15	1.13	1.11	1.10	1.08	1.07	1.05	1.05	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02
50	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.01
60	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	.96	.97	.97	.97	.98	.98	.98	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99
90	.93	.94	.94	.95	.95	.96	.97	.97	.98	.98	.98	.98	.98	.99	.99	.99	.99	.99
100	.90	.91	.92	.93	.93	.95	.95	.96	.97	.97	.97	.98	.98	.98	.98	.98	.98	.99
120	.84	.86	.87	.89	.90	.91	.93	.94	.94	.95	.96	.96	.96	.97	.97	.97	.97	.98
140	.80	.82	.83	.85	.86	.88	.90	.91	.92	.93	.94	.94	.95	.95	.96	.96	.96	.97
160	.76	.78	.80	.82	.83	.86	.88	.89	.90	.91	.92	.93	.94	.94	.95	.95	.95	.96

Source: USDA-SCS

1992

CHECK BARREL CAPACITY AT 88.5' ~ 77.0' = 11.5' = H

3.14

WC035_STONEHOUSE_COMMERCE_PK_156

ORIFICE

ORIFICE = 6.00 INCHES

ELEV. (FT.)	FLOW (CFS)
83.25	0.00
83.50	.19
83.75	.47
84.00	.67
84.25	.82
84.50	.95
84.75	1.06
85.00	1.16
85.25	1.25
85.50	1.34
85.75	1.42
86.00	1.49
86.25	1.57
86.50	1.64
86.75	1.70
87.00	1.77
87.25	1.83

Avg 1.14 CFS

FORMULA USED Q = C * A * SQR 2gh HEAD > Dia

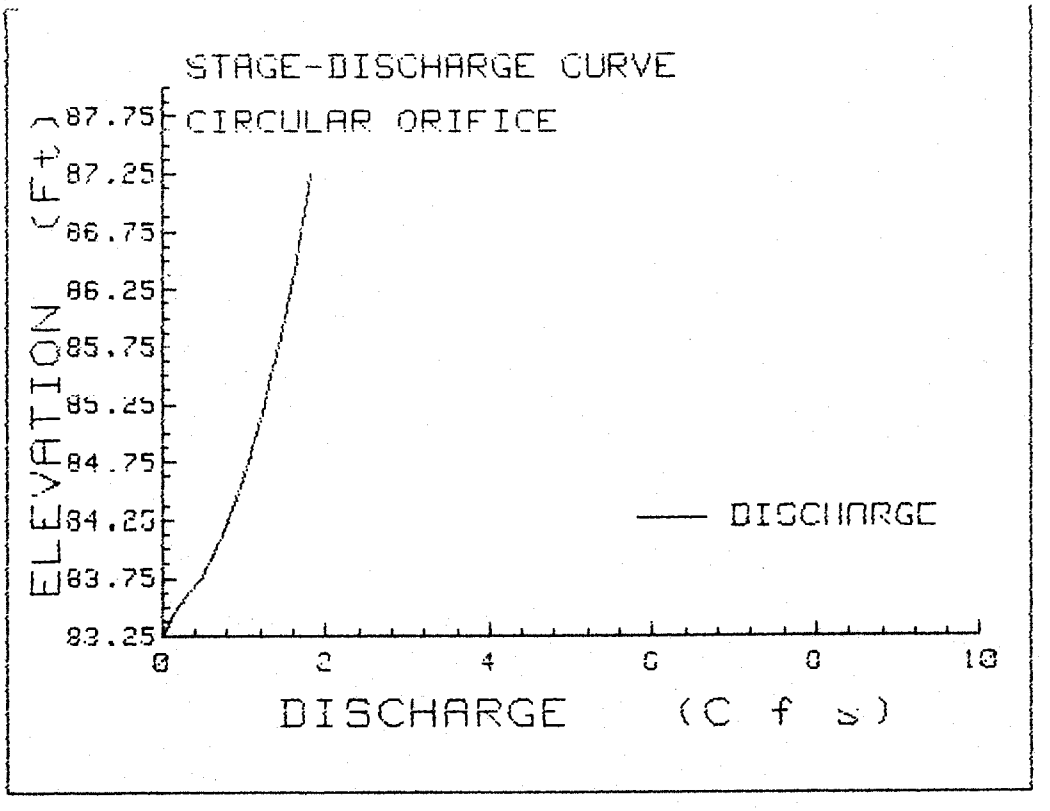
Q = 3 * D * HEAD^1.5 HEAD < Dia

Vol @ 87.25 = 306,764
Vol @ 83.25 = 138,470
168,294 cu.ft.

1.14 CFS X 60 SEC/MIN X 60 MIN/HR = 4104 CF/HR

168,294 CF ÷ 4104 CF/HR = 41.0 hrs.

PAGE
LANGLEY & McDONALD, P.C.
WILLIAMSBURG, VIRGINIA
1/5/95



STORM - SEWER DESIGN COMPUTATIONS

L & D 229

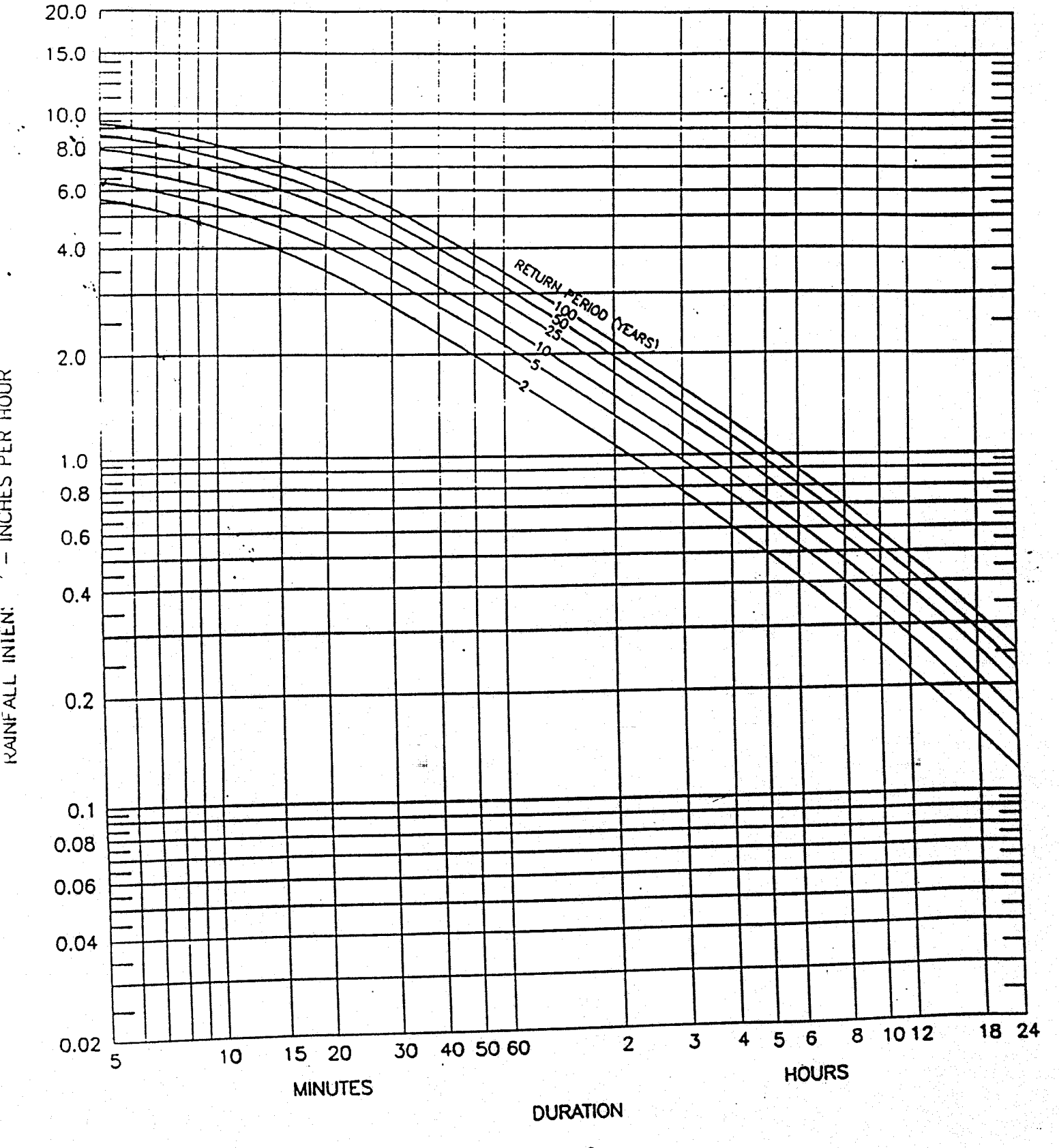
ROUTE 600 RELOCATED PROJ. STONEHOUSE PARKWAY
COUNTY JAMES CITY DISTRICT
DESCRIPTION STONEHOUSE PARKWAY 10+00 to 26+50

SHEET 1 OF 1

FROM POINT	TO POINT	AREA DRAIN. "A" ACRES	RUN-OFF COEF. C	CA INCREMENT	CA ACCUMULATED	INLET TIME MINUTES	RAIN FALL IN./HR.	RUNOFF Q C.F.S.	INVERT ELEVATIONS UPPER END	INVERT ELEVATIONS LOWER END	LENGTH FT.	SLOPE FT./FT.	DIA. IN.	CAPACITY C.F.S.	VEL. F.P.S.	FLOW TIME SEC.	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	2	2.83	0.72	—	2.04	5	7.0	14.3	113.71	113.56	18'	0.0084	24"	20.73	7.1	2.5	
2	3	0.07	0.9	0.06	2.10	5.04	7.0	14.7	113.46	113.12	44'	0.0078	24"	19.98	7.0	6.3	
3	4	0.16	0.9	0.14	2.24	5.14	7.0	15.7	113.02	112.90	15'	0.0078	24"	19.98	7.0	2.1	
4	5	0.09	0.4	0.04	2.28	5.17	7.0	16.0	112.80	112.54	33'	0.0078	24"	19.98	7.1	4.6	
5	7	0.05	0.9	0.05	2.33	5.25	6.9	16.1	112.44	112.15	37'	0.0078	24"	19.98	7.1	5.2	
6	7	0.05	0.4	—	0.02	5	7.0	0.14	113.41	112.90	40'	0.0128	15"	7.31	2.3	17.4	
7	8	0.10	0.9	0.09	2.44	5.34	6.9	16.8	112.05	111.74	40'	0.0078	24"	19.98	7.1	5.5	
9	10	6.70	0.72	—	4.82	10	6.0	28.94	109.50	109.33	28'	0.006	30"	31.77	5.2	5.4	
10	11	0.04	0.6	0.024	4.84	10.1	6.0	29.04	109.23	109.04	32'	0.006	30"	31.77	5.2	6.1	
11	12	0.29	0.9	0.26	5.10	10.2	6.0	30.60	108.94	108.63	18'	0.0174	30"	54.11	7.6	2.4	
12	13	0.19	0.4	0.08	5.18	10.2	6.0	31.08	108.53	107.80	42'	0.0174	30"	54.11	7.7	5.4	
13	14	0.33	0.9	0.30	5.48	10.3	5.9	32.36	107.70	107.00	34'	0.0206	30"	58.87	8.2	4.1	
15	16	1.65	0.7	[illegible]	1.15	9	4.7	5.45	100.89	100.64	50	0.005	18"	7.5	4.7	10.6	
17	16	1.40	0.7	[illegible]	0.98	9	4.7	4.80	100.89	100.64	50	0.005	18"	7.5	4.7	10.6	
16	18	0.39	0.9	0.35	2.48	9	4.7	11.66	100.14	99.40	37	0.02	18"	14.9	9.4	4.0	
18	19	0.13	0.6	0.08	2.56	9.2	4.7	12.03	99.30	98.98	16'	0.02	18"	14.9	9.4	1.7	
19	20	0.17	0.6	0.10	2.66	9.3	4.9	13.03	98.88	97.77	37'	0.03	18"	18.0	10.7	3.5	
20	21	0.34	0.9	0.35	3.01	9.3	4.9	14.75	95.00	82.00	255	0.0689	18"	27.5	18.4	13.9	

NORFOLK, VA.

Fig. 1.5.1.7



Rev. 6/92

PROJECT 89046
HEC12 Version: V2.91 Run Date: 04-14-1994

==========

INLET NUMBER 2 DI-3B LENGTH 4.0 STATION 11+00

DRAINAGE AREA = 0.070 ACRES C VALUE = .900 CA = 0.063
SUM CA= 0.063 INT= 3.50 CFS= 0.221 CO= 0.000 GUTTER FLOW= 0.221

GUTTER SLOPE = 0.0208 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.43	2.0	1.40	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 3.6 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.22 CFS CARRYOVER= 0.00

==========

INLET NUMBER 3 DI-3B LENGTH 6.0 STATION 11+00

DRAINAGE AREA = 0.160 ACRES C VALUE = .900 CA = 0.144
SUM CA= 0.144 INT= 3.50 CFS= 0.504 CO= 0.000 GUTTER FLOW= 0.504

GUTTER SLOPE = 0.0208 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.95	2.0	1.03	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 5.1 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.50 CFS CARRYOVER= 0.00

==========

INLET NUMBER 4 DI-3A LENGTH 2.5 STATION 11+00

DRAINAGE AREA = 0.080 ACRES C VALUE = .400 CA = 0.032
DRAINAGE AREA = 0.010 ACRES C VALUE = .400 CA = 0.004
SUM CA= 0.036 INT= 3.50 CFS= 0.126 CO= 0.000 GUTTER FLOW= 0.126

GUTTER SLOPE = 0.0010 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD AT A SLOPE OF .001 (ft./ft.) AND 0.11 (cfs) IS 1.96 (ft.)

XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
P EFFEC. LENGTH (ft) = 6.10 H (ft) = 0.458
DEPTH OF WATER (ft) = 0.04 SPREAD (ft) = 2.07

```
==========================================================================
INLET NUMBER 5 DI-3A          LENGTH   2.5          STATION  11+00

DRAINAGE AREA =  0.030 ACRES        C VALUE = .900        CA =  0.027
DRAINAGE AREA =  0.020 ACRES        C VALUE = .900        CA =  0.018
SUM CA=   0.045 INT=  3.50  CFS=   0.157  CO=  0.000 GUTTER FLOW=   0.157

GUTTER SLOPE = 0.0010 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT


SPREAD AT A SLOPE OF .001 (ft./ft.) AND   0.09 (cfs) IS  1.84 (ft.)

       XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
    P EFFEC. LENGTH (ft) =  6.10                    H (ft) = 0.458
    DEPTH OF WATER (ft) =   0.05            SPREAD (ft)  =  2.41



==========================================================================
INLET NUMBER 6 DI-3A          LENGTH   2.5          STATION

DRAINAGE AREA =  0.045 ACRES        C VALUE = .400        CA =  0.018
DRAINAGE AREA =  0.005 ACRES        C VALUE = .800        CA =  0.004
SUM CA=   0.022 INT=  3.50  CFS=   0.077  CO=  0.000 GUTTER FLOW=   0.077

GUTTER SLOPE = 0.0010 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT


SPREAD AT A SLOPE OF .001 (ft./ft.) AND   0.06 (cfs) IS  1.58 (ft.)

       XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
    P EFFEC. LENGTH (ft) =  6.10                    H (ft) = 0.458
    DEPTH OF WATER (ft) =   0.03            SPREAD (ft)  =  1.49


==========================================================================
INLET NUMBER 7 DI-3B          LENGTH   4.0          STATION

DRAINAGE AREA =  0.100 ACRES        C VALUE = .900        CA =  0.090
SUM CA=   0.090 INT=  3.50  CFS=   0.315  CO=  0.000 GUTTER FLOW=   0.315

GUTTER SLOPE = 0.0143 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo       a      S'W      SE
  1.75     2.0     1.14   0.0833      4.0       1.00     3.5    0.146   0.167

       XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
    REQUIRED LENGTH (ft) =  3.8                 EFFICIENCY= 1.00
    CFS INTERCEPTED=  0.31                CFS CARRYOVER=  0.00
```

PROJECT 89046
HEC12 Version: V2.91

Run Date: 04-15-1994

==========

INLET NUMBER 9 DI-3A LENGTH 2.5 STATION 17+50

DRAINAGE AREA = 0.040 ACRES C VALUE = .600 CA = 0.024
SUM CA= 0.024 INT= 3.50 CFS= 0.084 CO= 0.000 GUTTER FLOW= 0.084

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
0.93	2.0	2.15	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 2.7 EFFICIENCY= 0.99
CFS INTERCEPTED= 0.08 CFS CARRYOVER= 0.00

==========

INLET NUMBER 10 DI-3B LENGTH 8.0 STATION 17+50

DRAINAGE AREA = 0.290 ACRES C VALUE = .900 CA = 0.261
SUM CA= 0.261 INT= 3.50 CFS= 0.913 CO= 0.000 GUTTER FLOW= 0.913

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
3.05	2.0	0.66	0.0833	4.0	0.99	3.5	0.146	0.165

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 7.4 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.91 CFS CARRYOVER= 0.00

==========

INLET NUMBER 11 DI-3B LENGTH 6.0 STATION 17+40

DRAINAGE AREA = 0.190 ACRES C VALUE = .400 CA = 0.076
SUM CA= 0.076 INT= 3.50 CFS= 0.266 CO= 0.000 GUTTER FLOW= 0.266

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.43	2.0	1.40	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 4.4 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.27 CFS CARRYOVER= 0.00

```
==============================================================================
INLET NUMBER 12 DI-3B        LENGTH   8.0        STATION  17+40

DRAINAGE AREA =  0.330 ACRES        C VALUE = .900        CA =  0.297
SUM CA=   0.297 INT=  3.50  CFS=   1.039  CO=  0.000 GUTTER FLOW=   1.039

GUTTER SLOPE = 0.0300 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo      a      S'W     SE
  3.46     2.0     0.58   0.0833      4.0       0.97    3.5    0.146  0.163

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
    REQUIRED LENGTH (ft) =  7.9                EFFICIENCY= 1.00
    CFS INTERCEPTED=  1.04                 CFS CARRYOVER=  0.00
```

```
==========================================================================
INLET NUMBER 15                LENGTH  16.0          STATION  21+50

DRAINAGE AREA =  1.650 ACRES        C VALUE = .700        CA =  1.155
SUM CA=   1.155 INT=  3.50  CFS=   4.043  CO=  0.000 GUTTER FLOW=   4.043

GUTTER SLOPE = 0.0300 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX       Eo       a      S'W     SE
  8.25     2.0     0.24   0.0833      4.0        0.67    3.5    0.146  0.118

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
   REQUIRED LENGTH (ft) = 16.9                EFFICIENCY= 1.00
   CFS INTERCEPTED=  4.02                 CFS CARRYOVER=  0.02


==========================================================================
INLET NUMBER 17                LENGTH  12.0          STATION  22+50

DRAINAGE AREA =  1.400 ACRES        C VALUE = .700        CA =  0.980
SUM CA=   0.980 INT=  3.50  CFS=   3.430  CO=  0.000 GUTTER FLOW=   3.430

GUTTER SLOPE = 0.0100 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX       Eo       a      S'W     SE
  9.89     2.0     0.20   0.0833      4.0        0.58    3.5    0.146  0.105

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
   REQUIRED LENGTH (ft) = 12.1                EFFICIENCY= 1.00
   CFS INTERCEPTED=  3.43                 CFS CARRYOVER=  0.00
```

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project Commerce Parkway at Stonehouse

Basin # BMP # 1 Location NE corner Rt 30 & Rt 746 (Old Stage Rd)

Total area draining to basin: 326 acres.

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 32.6 acres = 2184.2 cu. yds.

2. Available basin volume = 4380 cu. yds. at elevation 83.25. (From storage - elevation curve)

3. Excavate 0 cu. yds. to obtain required volume*.

   * Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

   33 cu. yds. x 32.6 acres = 1076 cu. yds.

5. Elevation corresponding to cleanout level = 77 ±.

   (From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 6.25 ft. (Min. = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 32.6 acres = 2184.2 cu. yds.

8. Total available basin volume at crest of riser* = 9630 cu. yds. at elevation 87.25. (From Storage - Elevation Curve)

* Minimum = 134 cu. yds./acre of total drainage area.

9. Diameter of dewatering orifice = 6 in.

10. Diameter of flexible tubing = N/A in. (diameter of dewatering orifice plus 2 inches). USING RIGID PIPING FOR PERMANENT TRASH PROTECTION

Preliminary Design Elevations

11. Crest of Riser = 87.25

Top of Dam = 90.00

Design High Water = 86.70

Upstream Toe of Dam = 73

Basin Shape

12. Length of Flow / Effective Width — L / We = 250 / 70

If > 2, baffles are not required 3.6 NO BAFFELS

If < 2, baffles are required _____

Runoff

13. Q_2 = 72.74 cfs (From Chapter 5)

14. Q_{25} = 87.41 cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 =$ 72.74 cfs. (riser and barrel)

Without emergency spillway, required spillway capacity $Q_p = Q_{25} =$ 87.41 cfs. (riser and barrel)

16. With emergency spillway:

Assumed available head (h) = 1.5 ft. (Using Q_2)

h = Crest of Emergency Spillway Elevation - Crest of Riser Elevation

Without emergency spillway:

Assumed available head (h) = w/A ft. (Using Q_{25})

h = Design High Water Elevation - Crest of Riser Elevation

17. Riser diameter (D_r) = 72 in. Actual head (h) = 1.2 2 year / 1.35 ft. 25 year

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 70 ft.

Head (H) on barrel through embankment = * ft.

(From Plate 3.14-7).

19. Barrel diameter = 36 in.

(From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).

20. Trash rack and anti-vortex device

Diameter = 107 inches.

Height = 24 inches.

(From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity Q_e = $Q_{\cancel{25}\,100}$ - Q_p = 88.68 - 88.50 cfs. = 0.18 = Q_e

22. Bottom width (b) = 10 ft.; the slope of the exit channel (s) = 0.2± ft./foot; and the minimum length of the exit channel (x) = 50 ft.
(From Table 3.14-C).

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = 8.25 ft.

Slope of upstream face of embankment (Z) = 3 :1.

Slope of principal spillway barrel (S_b) = 1.0 %

Length of barrel in saturated zone (L_s) = 60 ft.

24. Number of collars required = 3 dimensions = 5'-9"x5'-9"

(from Plate 3.14-12).

Final Design Elevations

25. Top of Dam = 90

Design High Water = _____ 100 YEAR

Emergency Spillway Crest = 88.7

Principal Spillway Crest = 87.25

Dewatering Orifice Invert = 83.25

Cleanout Elevation = 77 ±

Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (if excavation was performed) = 73' ±

Langley and McDonald
A PROFESSIONAL CORPORATION
ENGINEERS • PLANNERS • SURVEYORS
VIRGINIA BEACH - WILLIAMSBURG, VIRGINIA

Subject _____

Computed By DBL Checked By _____

Project No. _____
Client STONEHOUSE
Date 6-1-94 Sheet No. _____

SEDIMENT TRAP @ STA 31+50

STRATEGY — DIVERT UPSTREAM, UNCLEARED LAND ~~WITH~~ TO LEVEL SPREADER & NATURAL DRAINAGE → RESULTING AREA SHOULD BE LESS THAN 3.0 ACRES

AREA THROUGH TRAP = 820' x 150' = 123,000 SF
= 2.8 AC

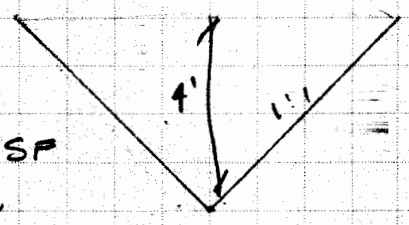
VOLUME STORAGE REQ'D = 2.8 AC x 134 CY/AC
= 375.2 CY = 10,130 CF

WET VOL = 1/2 TOTAL = 1/2 · 10,130 CF
= 5065 CF

DESIGN TRAP TO FIT IN OUTFALL CHANNEL

WET VOL WILL BE EXCAVATED BELOW FUTURE INV., WILL HAVE FLAT BOTTOM, 2:1 SIDES

IF 4' DEEP
& BOTTOM
AREA = 0 SF



TOP = 8' WIDE

AREA TOP REQUIRED = $A_2 = \frac{Vol}{0.85 \times Depth} = \frac{5065}{0.85 \times 4'} = 1490 SF$

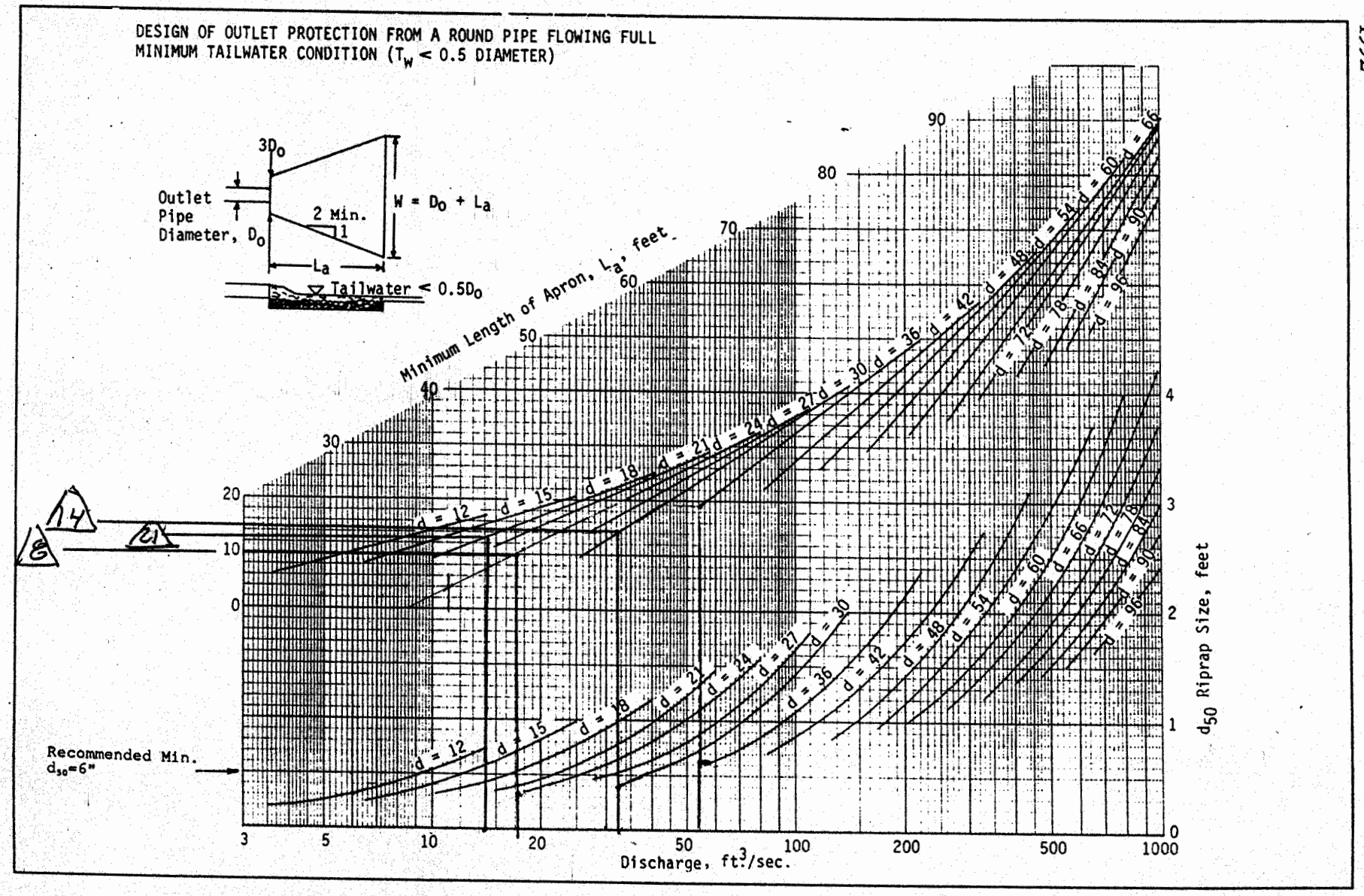
LENGTH REQ'D = $\frac{1490 SF}{8'} = 186'$
USE 190'

DRY VOLUME REQ'D = 5065 CF
USE 2:1 SIDES FOR FUTURE DITCH

VOLUME PROVIDED = $\frac{(190 \times 8) + (190 + 4H_0)(8 + 4H_0)}{2} \times H_0$

IF $H_0 = 2'$ THEN VOL = 4688 CF < 5065
USE $H_0 = 2.5$, VOL = 6400 CF OK
H = 3.5, W = 3.0, L = 2.8 x 6 = 17 LF

NEED TO PROVIDE DIV INCLUDED AREA FROM DRAINING INTO ST



Source: USDA-SCS

Plate 3.18-3

LANGLEY and McDONALD, P.C.
201 Packets Court
Williamsburg, Virginia 23185

PAVEMENT DESIGN
VHRC 73-R21

PROJECT: STONEHOUSE
LOCATION:James City Co., Virginia
STREET: STONEHOUSE PARKWAY
FROM STA. 10+50 TO STA. 18+50
DATE: 20-Sep-94

TRAFFIC ANALYSIS		SUBGRADE ANALYSIS	
1. Vehicles Per Day =	986	1. CBR Values =	10.00 (assumed)
2. % Heavy Traffic =	35 %		0.00 0.00 0.00
3. Equiv. Present ADT =	6902	2. Enter No. of Tests =	1
4. Design Period	10 Yrs.	3. Average CBR =	10.00
5. % Growth =	5 %	4. Design CBR =	6.67
6. Growth Factor =	1.05	5. Soil Resiliency Factor =	3.00
7. V.P.D. Projection =	11,243 ADT	6. Soil Support Value =	20.00

PAVEMENT DESIGN

1. Thickness Index Required = 20.5 inches

2. Design

ALT. 'A'

Material	Factor	Thickness	Index	% Asphalt
S-5	1.67	0.0	0.0	ERR
Aggregate	1.00	0.0	0.0	
Sel. Material	0.60	0.0	0.0	
TOTAL		0.0	0.0	ERR

ALT. 'B'

Material	Factor	Thickness	Index	% Asphalt
S-5	2.25	2.0	4.5	0.21
B-3	2.25	4.5	10.1	0.46
Aggregate	0.60	12.0	7.2	
Sel. Material	0.40	0.0	0.0	
TOTAL		18.5	21.8	0.67

FILE: STONE2.MRG
LANGLEY and McDONALD, P.C.
201 Packets Court
Williamsburg, Virginia 23185

PAVEMENT DESIGN
VHRC 73-R21

PROJECT: STONEHOUSE
LOCATION: James City Co., Virginia
STREET: STONEHOUSE PARKWAY
FROM STA. 18+50 TO STA. 26+50
DATE: 20-Sep-94

TRAFFIC ANALYSIS		SUBGRADE ANALYSIS	
1. Vehicles Per Day =	525	1. CBR Values =	10.00 (assumed)
2. % Heavy Traffic =	35 %		0.00 0.00 0.00
3. Equiv. Present ADT =	3675	2. Enter No. of Tests =	1
4. Design Period	10 Yrs.	3. Average CBR =	10.00
5. % Growth =	5 %	4. Design CBR =	6.67
6. Growth Factor =	1.05	5. Soil Resiliency Factor =	3.00
7. V.P.D. Projection =	5,986 ADT	6. Soil Support Value =	20.00

PAVEMENT DESIGN

1. Thickness Index Required = 18.5 inches

2. Design

ALT. 'A'

Material	Factor	Thickness	Index	% Asphalt
S-5	1.67	0.0	0.0	ERR
Aggregate	1.00	0.0	0.0	
Sel. Material	0.60	0.0	0.0	
TOTAL		0.0	0.0	ERR

ALT. 'B'

Material	Factor	Thickness	Index	% Asphalt
S-5	2.25	2.0	4.5	0.23
B-3	2.25	4.5	10.1	0.52
Aggregate	0.60	8.0	4.8	
Sel. Material	0.40	0.0	0.0	
TOTAL		14.5	19.4	0.75

DRAINAGE,

STORMWATER MANAGEMENT,

EROSION CONTROL, AND PAVEMENT DESIGN

CALCULATIONS

FOR

STONEHOUSE INC.

LA GRANGE PARKWAY

(FORMERLY "STONEHOUSE PARKWAY, PHASE I")

AT

COMMERCE PARK

BMP #1 WC035

REVISED JANUARY 5, 1995
REVISED OCTOBER 11, 1994
MAY 31, 1994

Langley and McDonald, P.C.

Engineers
Surveyors
Planners
Landscape Architects
Environmental Consultants

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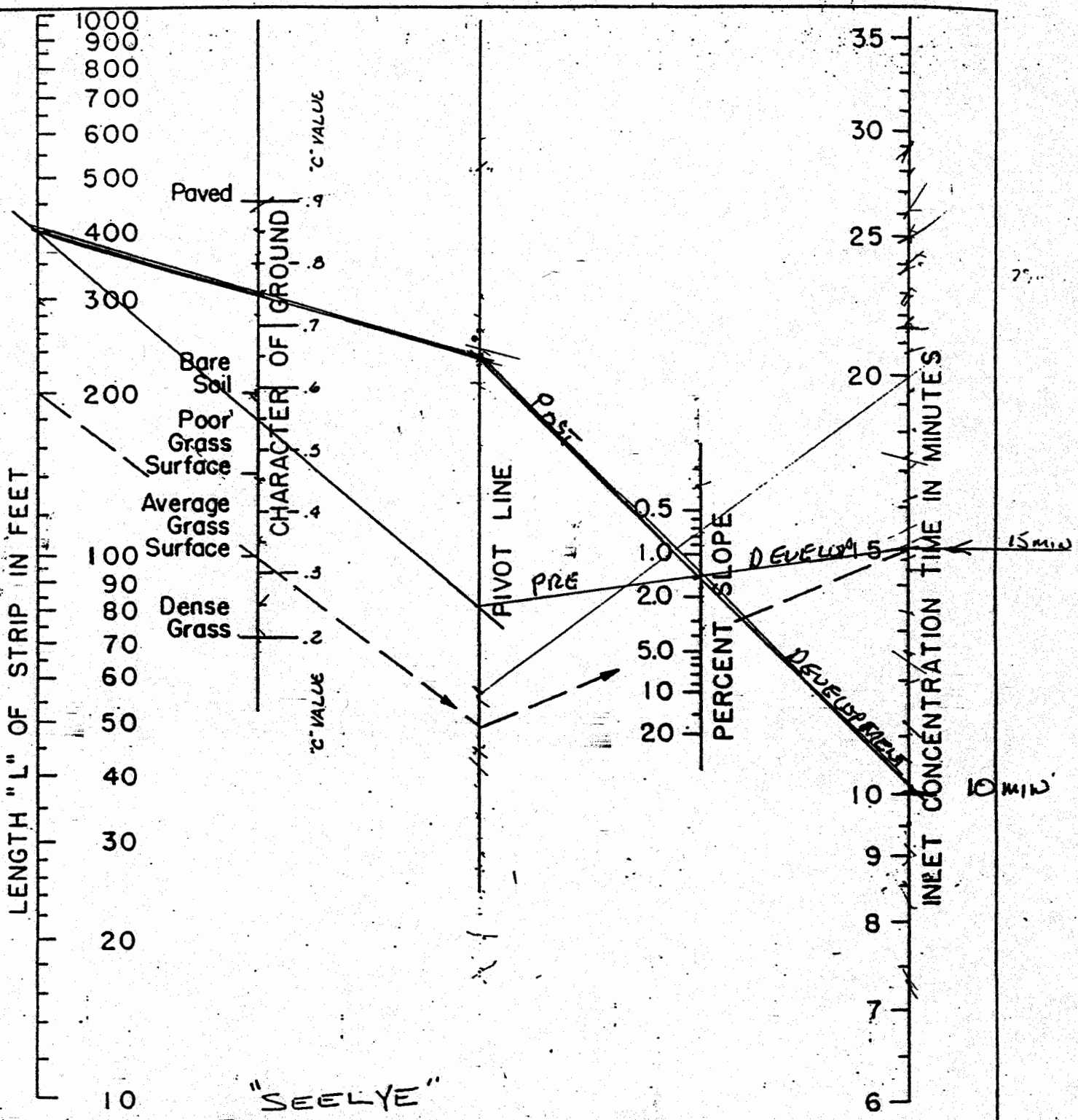
201 Packets Court, Williamsburg, VA 23185
(804) 253-2975 FAX: (804) 229-0049

DRAINAGE, STORMWATER MANAGEMENT, AND EROSION CONTROL DESIGN

The Drainage and overall Stormwater Management of this project was designed in accordance with James City County's 10 point BMP treatment. The Erosion and Sediment Control measures taken in this project were designed in conformance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

The Stormwater attenuation was designed using the SCS Tabular Hydrograph Method and run on Haested Methods, Inc.'s Quick TR55 and Pond 2 software. 24 Hr. Precipitation Data was provided by Mr. Darryl Cook based on historical records of the Williamsburg area.

FIG. 1.5.1.1



"SEELYE"

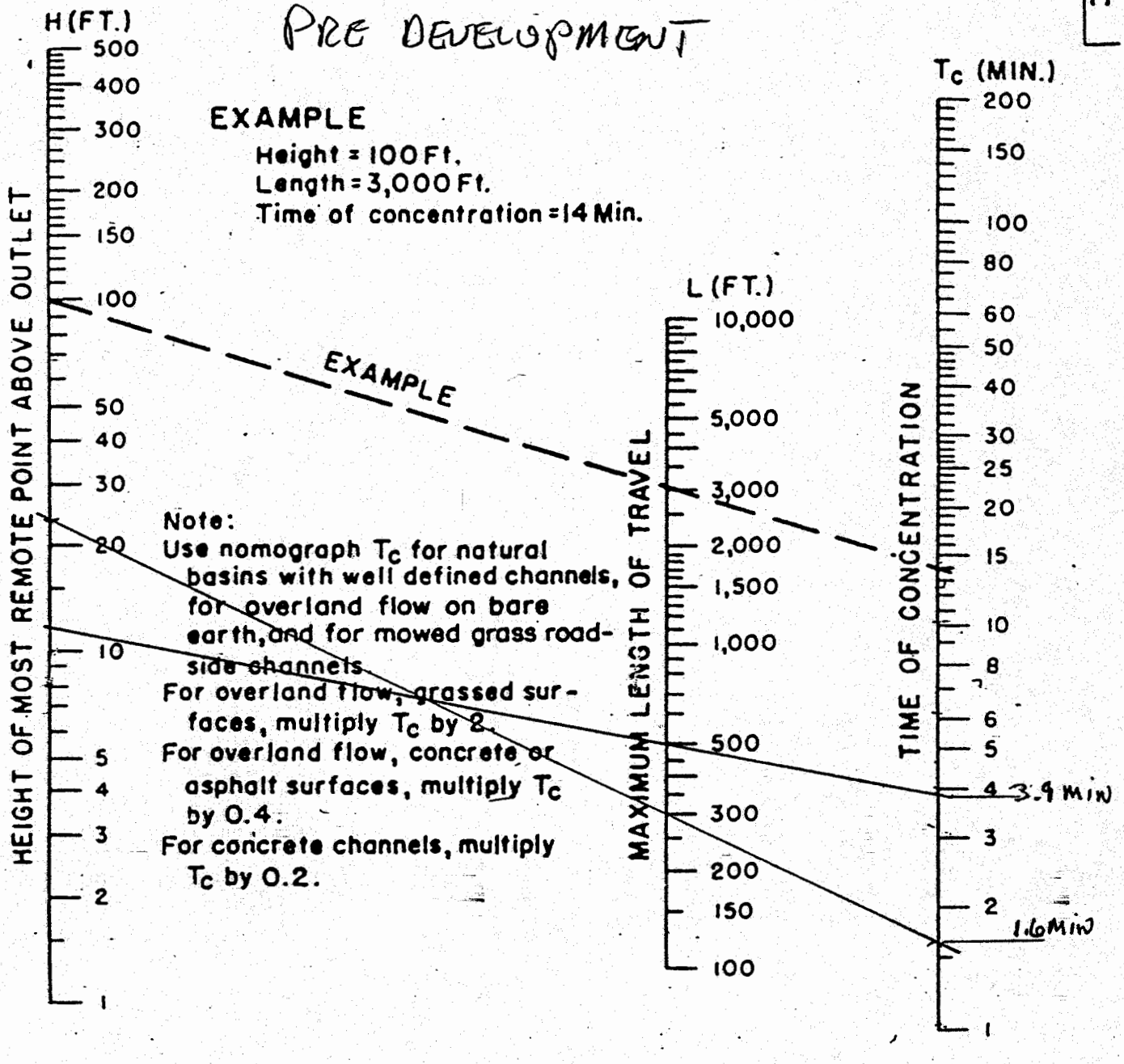
[OVERLAND] FLOW TIME

(SHEET)

REPRINTED WITH PERMISSION FROM "DATA BOOK FOR CIVIL ENGINEERS" VOL. I - DESIGN
2ND EDITION (1951) BY E. E. SEELYE

TCC

PRE DEVELOPMENT



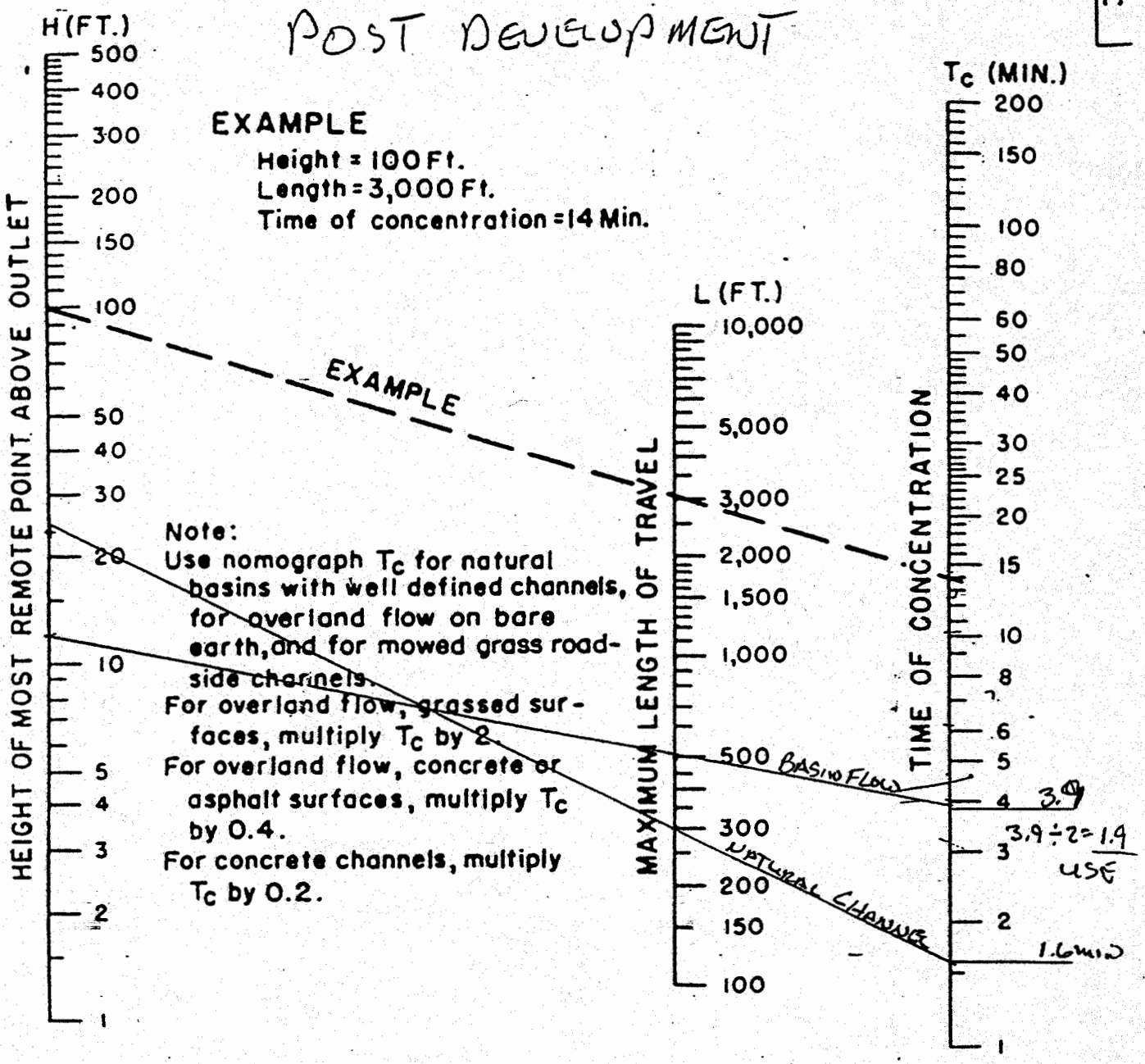
Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

WC035_STONEHOUSE_COMMERCE_PK - 177

TCC

POST DEVELOPMENT



Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

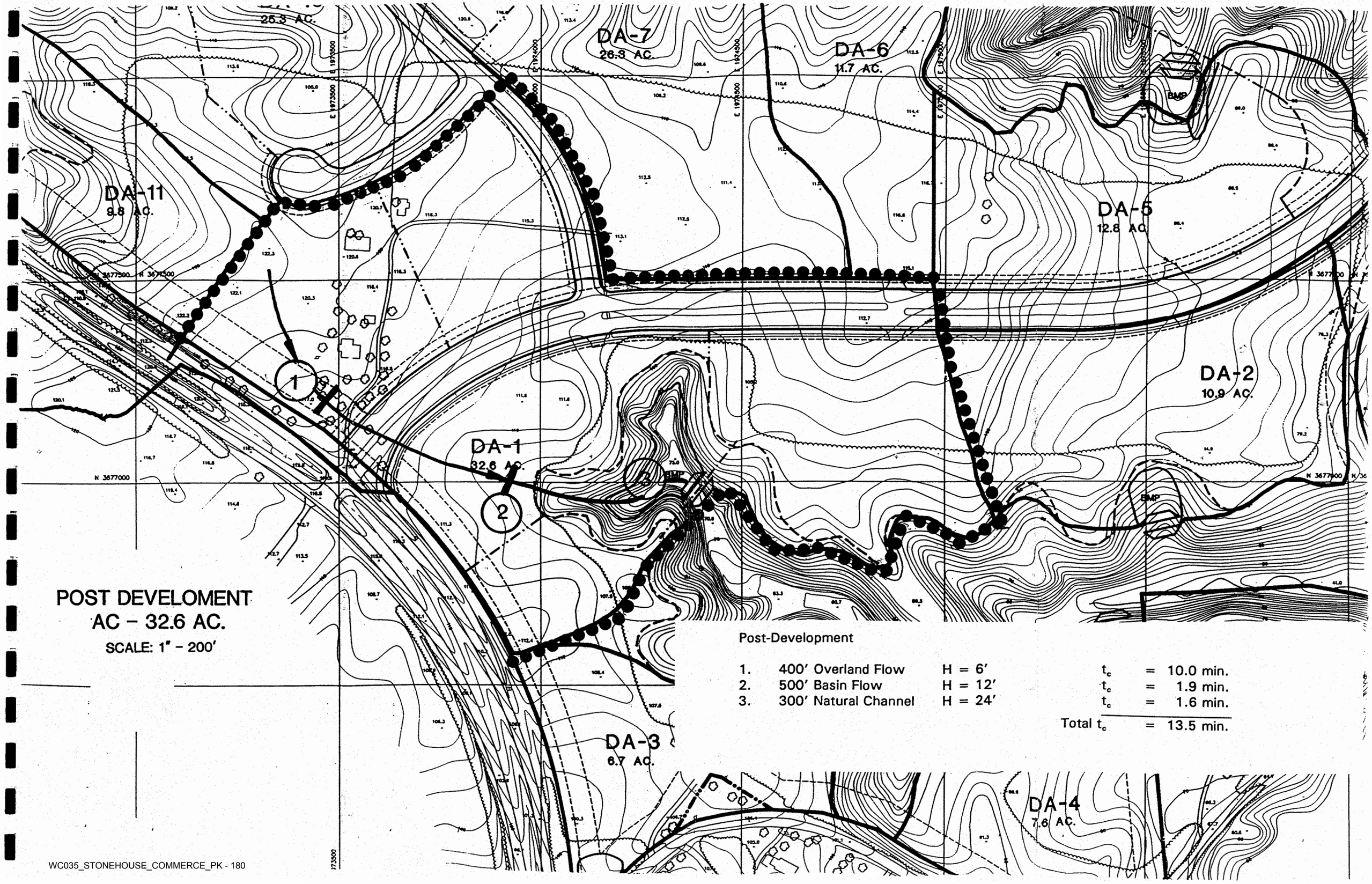
WC035_STONEHOUSE_COMMERCE_PK - 178

COMMERCE PARK
AT STONEHOUSE
STRUCTURAL BMP POINT SYSTEM

BMP	BMP POINTS		FRACTION OF SITE SERVED BY BMP		WEIGHTED BMP POINTS	Rv = 0.05+0.009I ASSUME I = 50%	R_m	$V_r = (R_m)(R_v) \times \frac{AC.}{12}$ (AC.FT.)	V_r (CU.FT.)	H x V_r (CU.FT.)
1 WET POND	9	X	~~22.6~~ 22.92 AC. / 247.3 = ~~0.143~~ 0.1857	=	~~1.1864~~ 1.234	0.50	0.45	0.611	26,626	106,504
2 WET POND	9	X	10.9 / 247.3 = ~~0.048~~ 0.044	=	0.3967			0.223	9,719	38,877
3 WET POND	9	X	6.7 / 247.3 = ~~0.029~~ 0.027	=	0.2438			0.126	5,472	21,889
4 WET POND	9	X	7.6 / 247.3 = ~~0.030~~ 0.031	=	0.2766			0.143	6,207	24,829
5 WET POND	9	X	11.6 / 247.3 = ~~0.051~~ 0.047	=	0.4222			0.218	9,474	37,897
6 WET POND	9	X	11.7 / 247.3 = ~~0.051~~ 0.047	=	0.4258			0.219	9,556	38,224
7 WET POND	9	X	26.3 / 247.3 = ~~0.115~~ 0.106	=	0.9571			0.493	21,480	85,922
8 WET POND	9	X	9.4 / 247.3 = ~~0.041~~ 0.038	=	0.3421			0.176	7,677	30,710
9 WET POND	9	X	14.3 / 247.3 = ~~0.063~~ 0.058	=	0.5204			0.268	11,680	46,718
10 WET POND	9	X	~~25.3~~ 24.0 / 247.3 = 0.111 0.097	=	~~0.9207~~ 0.8734			0.479	20,664	82,655
11 WET POND	9	X	9.8 + 8.6 AC. O.S. / 247.3 = 0.043	=	0.6670	0.50	0.45	0.345	15,028	60,113
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					6.361					

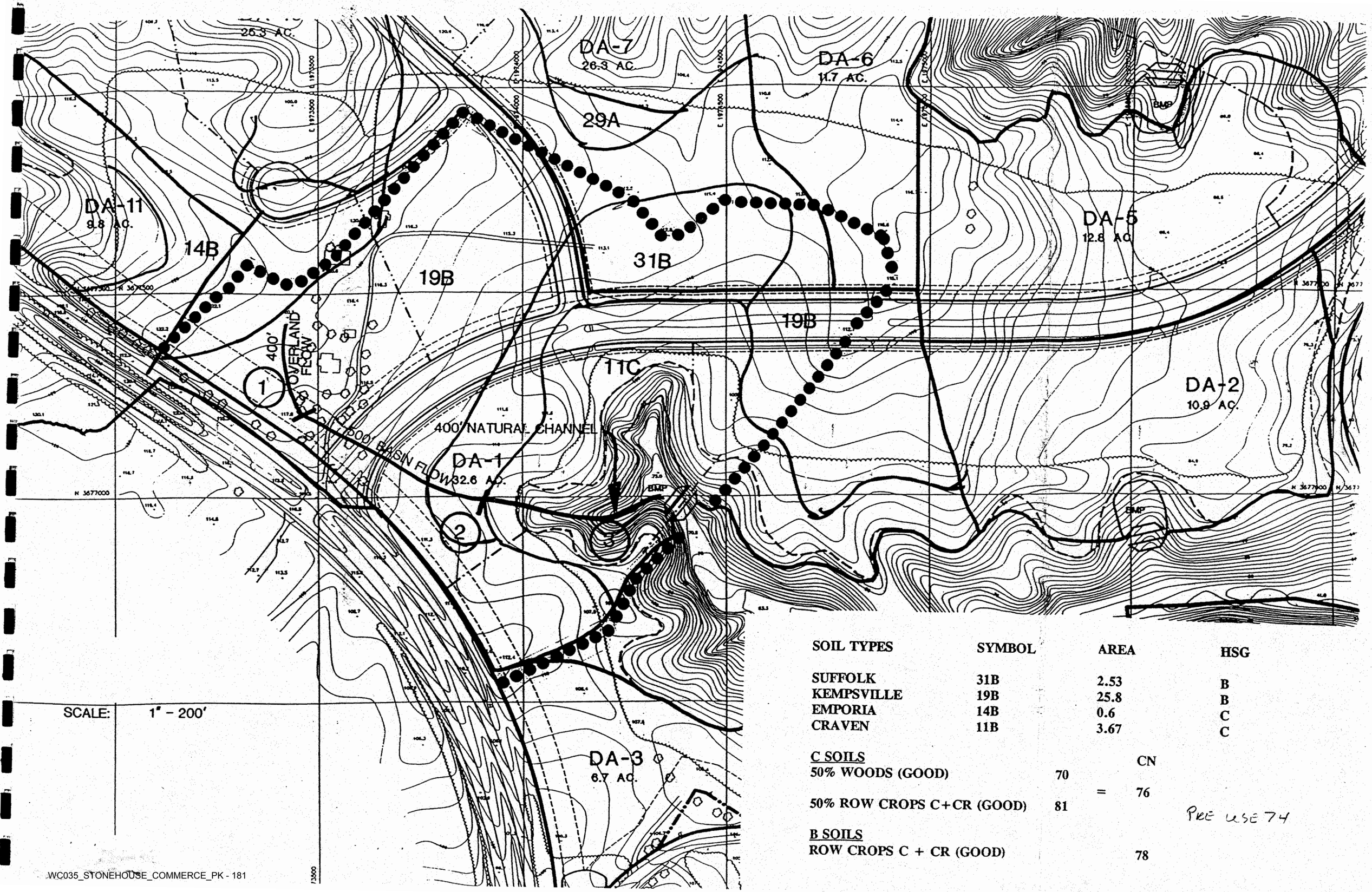
6.357

FRACTION OF SITE		NATURAL OPEN SPACE CREDIT		POINTS FOR NATURAL OPEN SPACE	TOTAL WEIGHTED POINTS				
99.9 AC. / 247.3	X	36.79%	=	3.679	~~6.361~~ 6.357	x 7	3.679	=	10.04 10.04
		(0.1 per 1%)			STRUCTURAL BMP POINTS		NATURAL OPEN SPACE POINTS		TOTAL



Post-Development

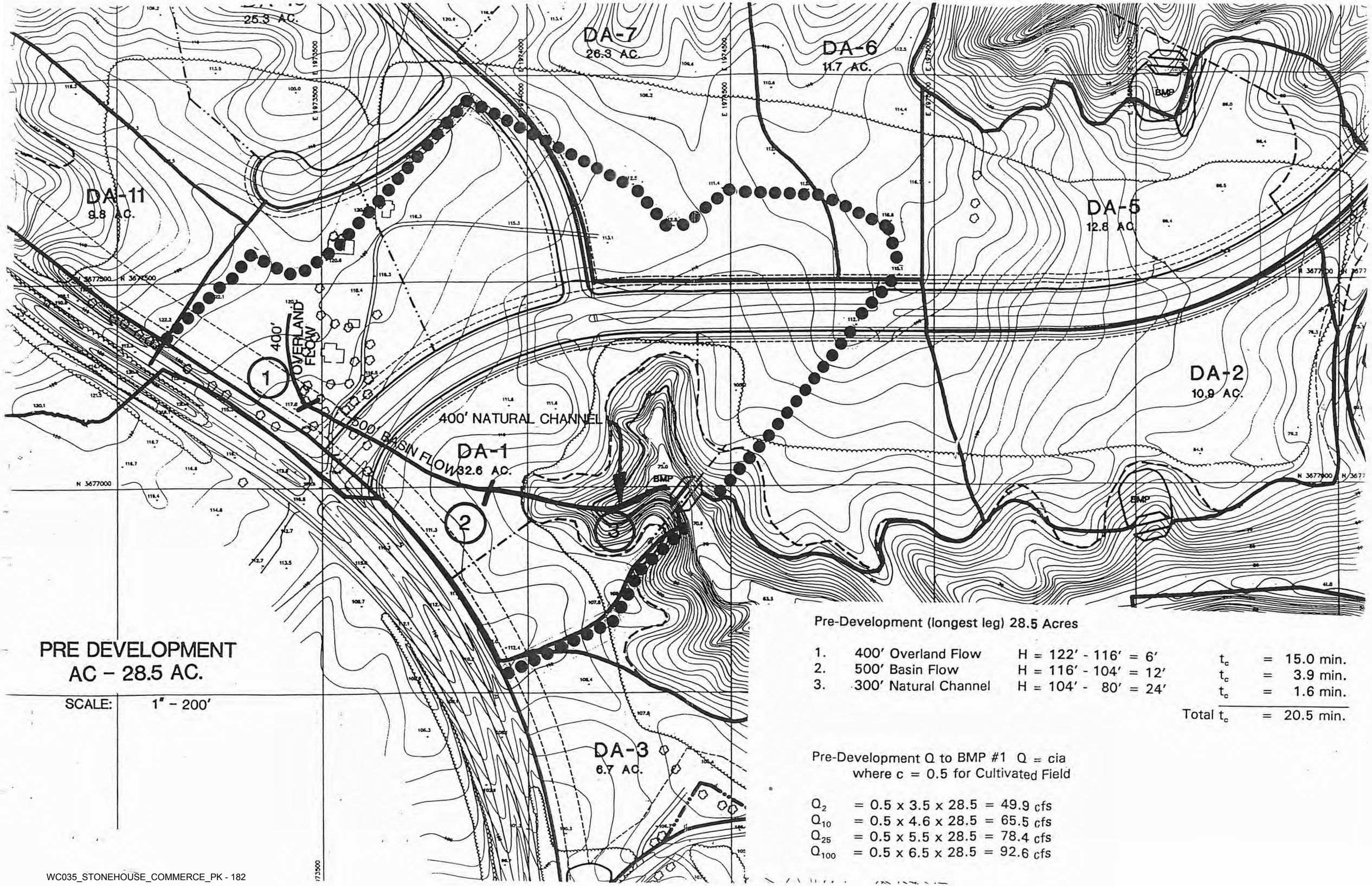
1.	400′ Overland Flow	H = 6′	t_c	=	10.0 min.
2.	500′ Basin Flow	H = 12′	t_c	=	1.9 min.
3.	300′ Natural Channel	H = 24′	t_c	=	1.6 min.
			Total t_c	=	13.5 min.



SOIL TYPES	SYMBOL	AREA	HSG
SUFFOLK	31B	2.53	B
KEMPSVILLE	19B	25.8	B
EMPORIA	14B	0.6	C
CRAVEN	11B	3.67	C

			CN
C SOILS			
50% WOODS (GOOD)	70		
		=	76
50% ROW CROPS C+CR (GOOD)	81		
B SOILS			
ROW CROPS C + CR (GOOD)			78

PRE USE 74



PRE DEVELOPMENT
AC – 28.5 AC.

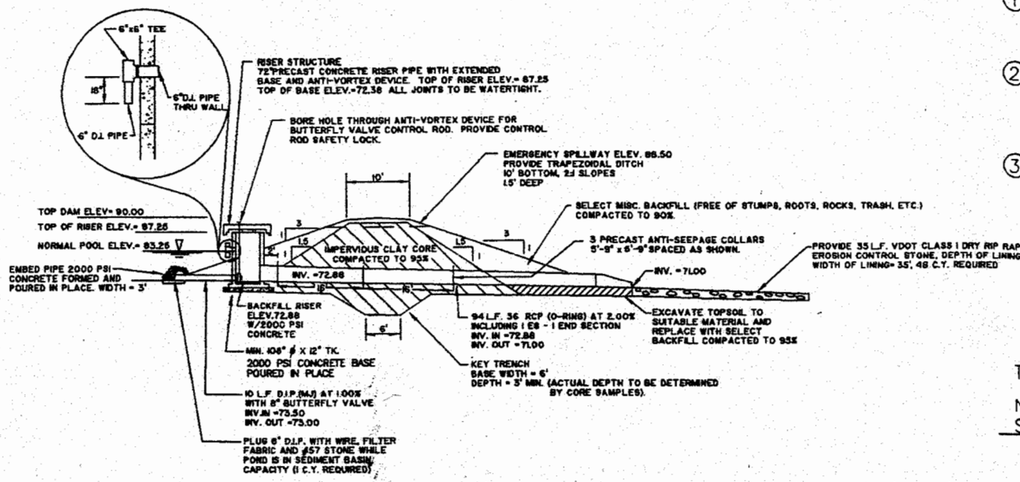
SCALE: 1" – 200'

Pre-Development (longest leg) 28.5 Acres

1.	400' Overland Flow	H = 122' - 116' = 6'	t_c	= 15.0 min.
2.	500' Basin Flow	H = 116' - 104' = 12'	t_c	= 3.9 min.
3.	300' Natural Channel	H = 104' - 80' = 24'	t_c	= 1.6 min.
			Total t_c	= 20.5 min.

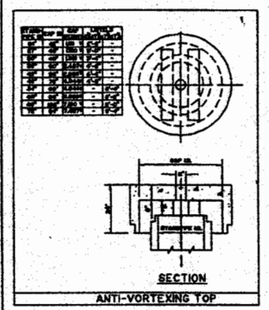
Pre-Development Q to BMP #1 Q = cia
where c = 0.5 for Cultivated Field

Q_2 = 0.5 x 3.5 x 28.5 = 49.9 cfs
Q_{10} = 0.5 x 4.6 x 28.5 = 65.5 cfs
Q_{25} = 0.5 x 5.5 x 28.5 = 78.4 cfs
Q_{100} = 0.5 x 6.5 x 28.5 = 92.6 cfs

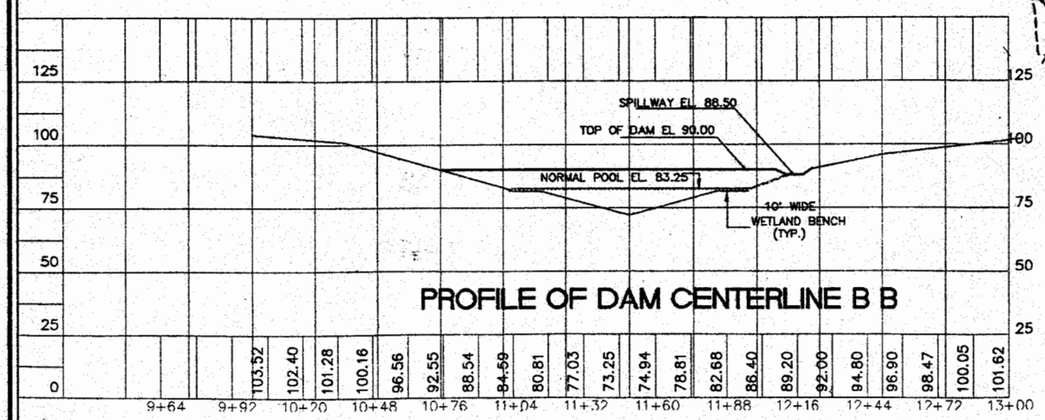


SECTION A-A

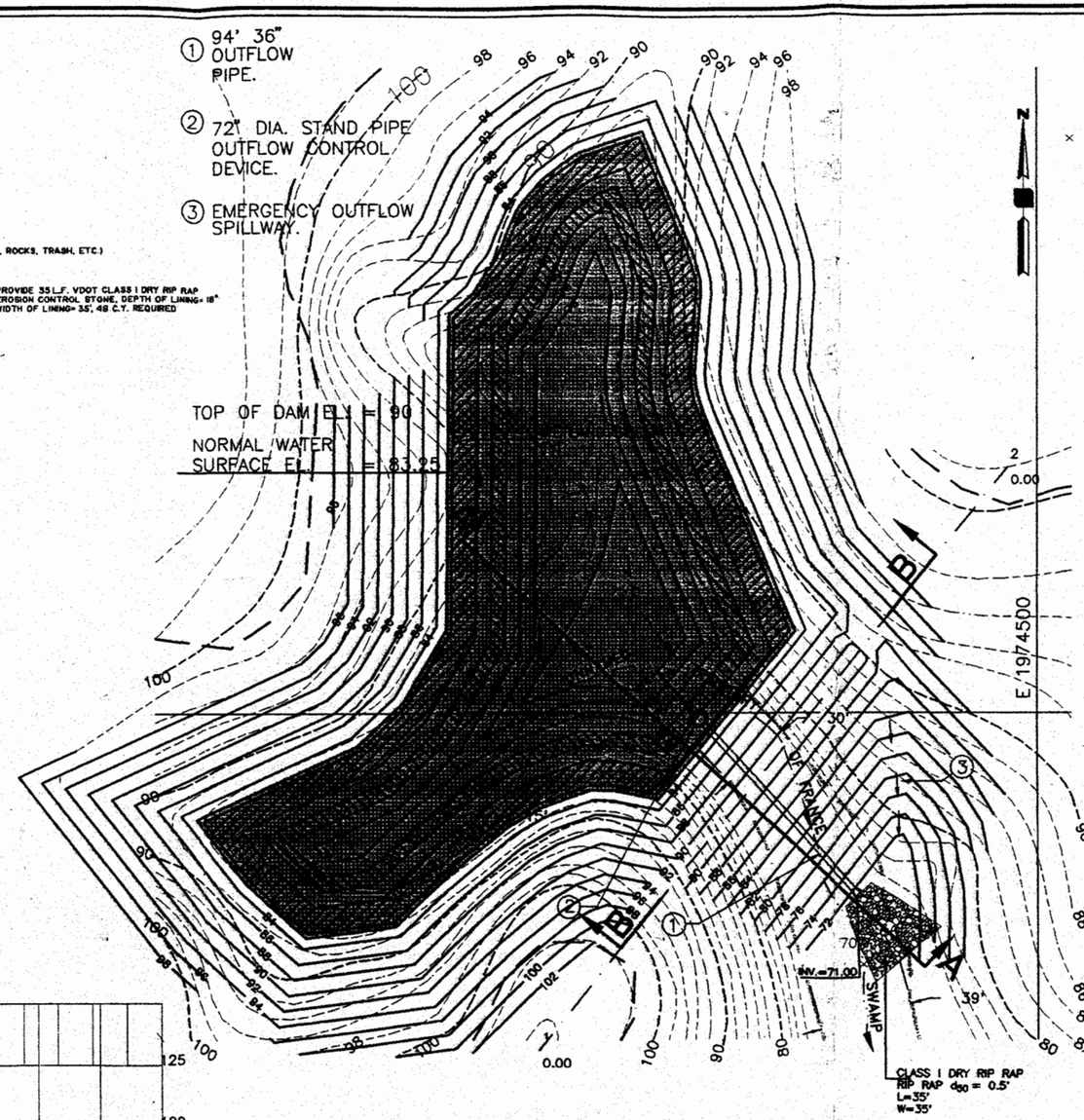
NOT TO SCALE



SCALES:
1" =25' HOR
1" =25' VER



PROFILE OF DAM CENTERLINE B B



BMP PLAN

SCALE: 1"=25'

Langley and McDonald, P.C.
Engineers • Surveyors • Planners
Landscape Architects • Environmental Consultants
WILLIAMSBURG
VIRGINIA BEACH

DES. J.L.H.
DWN. J.A.M.
CHK.
DATE 6/24/94

STONEHOUSE PARKWAY, PHASE I
AT
COMMERCE PARK
FOR
STONEHOUSE, INC.
BMP PLAN

SHEET 14 OF 22
DISK
PROJ. NO. 89049-29-5
DWG. 029RP014

TABULAR HYDROGRAPH METHOD MULTIPLE RUN OPTIONS (.MOP)

89046-PR <-- This File .WSD File --> 89046-PR

Note: Don't input .WSD file if CN & Tc/Tt files are entered below titles.

Title: SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

<--.RCN File Tc File: . Tt File: .

Specify TCT or TCM extension in the field after the Tc File and in the field after the Tt File.

Return Frequency (years):	2	10	25	100
24-hr Precip. (inches):	3.50	5.80	6.25	7.70
Hydrograph Files (.HYD):	SCS2PR	SCS10PR	SCS25PR	SCS100PR

SCS Distribution Type? II

Interpolate Ia/P (y/n)? Y

OUTPUT OPTIONS

* Input Data * Peaks * Hydrograph Summary * Hydrographs

<Esc> Exit <F5> Compute

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	3.50	I	1.24	I.2	.20

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 39 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	39	12.3
Composite Watershed	39	12.3

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	1	1	1	4	9	22	38	39	29
Total (cfs)	1	1	1	4	9	22	38	39	29

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	19	13	10	8	6	5	4	4	3
Total (cfs)	19	13	10	8	6	5	4	4	3

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	3	3	3	2	2	2	2	2	2
Total (cfs)	3	3	3	2	2	2	2	2	2

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	1	1	1	1	0
Total (cfs)	1	1	1	1	0

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	1	14.8	2
11.1	1	14.9	2
11.2	1	15.0	2
11.3	1	15.1	2
11.4	1	15.2	2
11.5	1	15.3	2
11.6	1	15.4	2
11.7	2	15.5	2
11.8	3	15.6	2
11.9	4	15.7	2
12.0	9	15.8	2
12.1	22	15.9	2
12.2	38	16.0	2
12.3	39	16.1	2
12.4	29	16.2	2
12.5	19	16.3	2
12.6	13	16.4	2
12.7	10	16.5	2
12.8	8	16.6	2
12.9	7	16.7	2
13.0	6	16.8	2
13.1	5	16.9	2
13.2	5	17.0	2
13.3	4	17.1	2
13.4	4	17.2	2
13.5	4	17.3	2
13.6	4	17.4	2
13.7	3	17.5	2
13.8	3	17.6	2
13.9	3	17.7	2
14.0	3	17.8	1
14.1	3	17.9	1
14.2	3	18.0	1
14.3	3	18.1	1
14.4	3	18.2	1
14.5	3	18.3	1
14.6	3	18.4	1
14.7	3	18.5	1

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS2PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	1	22.4	1
18.7	1	22.5	1
18.8	1	22.6	1
18.9	1	22.7	1
19.0	1	22.8	1
19.1	1	22.9	1
19.2	1	23.0	1
19.3	1	23.1	1
19.4	1	23.2	1
19.5	1	23.3	1
19.6	1	23.4	1
19.7	1	23.5	1
19.8	1	23.6	1
19.9	1	23.7	1
20.0	1	23.8	1
20.1	1	23.9	1
20.2	1	24.0	1
20.3	1	24.1	0
20.4	1	24.2	0
20.5	1	24.3	0
20.6	1	24.4	0
20.7	1	24.5	0
20.8	1	24.6	0
20.9	1	24.7	0
21.0	1	24.8	0
21.1	1	24.9	0
21.2	1	25.0	0
21.3	1	25.1	0
21.4	1	25.2	0
21.5	1	25.3	0
21.6	1	25.4	0
21.7	1	25.5	0
21.8	1	25.6	0
21.9	1	25.7	0
22.0	1	25.8	0
22.1	1	25.9	0
22.2	1		
22.3	1		

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	5.80	3.02	I.12	.12

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 102 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	102	12.2
Composite Watershed	102	12.2

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	4	6	17	34	66	102	102	71
Total (cfs)	3	4	6	17	34	66	102	102	71

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	44	31	23	18	13	10	9	8	7
Total (cfs)	44	31	23	18	13	10	9	8	7

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	7	6	5	5	4	4	4	3	3
Total (cfs)	7	6	5	5	4	4	4	3	3

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	3	3	2	2	0
Total (cfs)	3	3	2	2	0

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	5
11.1	3	14.9	5
11.2	4	15.0	5
11.3	4	15.1	5
11.4	5	15.2	5
11.5	5	15.3	4
11.6	6	15.4	4
11.7	10	15.5	4
11.8	13	15.6	4
11.9	17	15.7	4
12.0	34	15.8	4
12.1	66	15.9	4
12.2	102	16.0	4
12.3	102	16.1	4
12.4	71	16.2	4
12.5	44	16.3	4
12.6	31	16.4	4
12.7	23	16.5	4
12.8	18	16.6	4
12.9	15	16.7	4
13.0	13	16.8	3
13.1	11	16.9	3
13.2	10	17.0	3
13.3	9	17.1	3
13.4	9	17.2	3
13.5	9	17.3	3
13.6	8	17.4	3
13.7	7	17.5	3
13.8	7	17.6	3
13.9	7	17.7	3
14.0	7	17.8	3
14.1	7	17.9	3
14.2	6	18.0	3
14.3	6	18.1	3
14.4	6	18.2	3
14.5	5	18.3	3
14.6	5	18.4	3
14.7	5	18.5	3

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS10PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	3	22.4	2
18.7	3	22.5	2
18.8	3	22.6	2
18.9	3	22.7	2
19.0	3	22.8	2
19.1	3	22.9	2
19.2	3	23.0	2
19.3	3	23.1	1
19.4	3	23.2	1
19.5	3	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	1
20.4	2	24.2	1
20.5	2	24.3	1
20.6	2	24.4	1
20.7	2	24.5	1
20.8	2	24.6	1
20.9	2	24.7	1
21.0	2	24.8	1
21.1	2	24.9	1
21.2	2	25.0	1
21.3	2	25.1	0
21.4	2	25.2	0
21.5	2	25.3	0
21.6	2	25.4	0
21.7	2	25.5	0
21.8	2	25.6	0
21.9	2	25.7	0
22.0	2	25.8	0
22.1	2	25.9	0
22.2	2		
22.3	2		

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	6.25	3.40	I.11	.11

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 116 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	Yes	--

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	116	12.2
Composite Watershed	116	12.2

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	5	7	20	39	76	116	116	79
Total (cfs)	3	5	7	20	39	76	116	116	79

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	49	34	26	20	14	12	10	9	8
Total (cfs)	49	34	26	20	14	12	10	9	8

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	7	7	6	5	5	4	4	4	3
Total (cfs)	7	7	6	5	5	4	4	4	3

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	3	3	2	2	0
Total (cfs)	3	3	2	2	0

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	5
11.1	4	14.9	5
11.2	4	15.0	5
11.3	5	15.1	5
11.4	6	15.2	5
11.5	6	15.3	5
11.6	7	15.4	5
11.7	11	15.5	5
11.8	16	15.6	5
11.9	20	15.7	5
12.0	39	15.8	4
12.1	76	15.9	4
12.2	116	16.0	4
12.3	116	16.1	4
12.4	79	16.2	4
12.5	49	16.3	4
12.6	34	16.4	4
12.7	26	16.5	4
12.8	20	16.6	4
12.9	17	16.7	4
13.0	14	16.8	4
13.1	13	16.9	4
13.2	12	17.0	4
13.3	11	17.1	4
13.4	10	17.2	4
13.5	10	17.3	3
13.6	9	17.4	3
13.7	8	17.5	3
13.8	8	17.6	3
13.9	7	17.7	3
14.0	7	17.8	3
14.1	7	17.9	3
14.2	7	18.0	3
14.3	7	18.1	3
14.4	7	18.2	3
14.5	6	18.3	3
14.6	6	18.4	3
14.7	6	18.5	3

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS25PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	3	22.4	2
18.7	3	22.5	2
18.8	3	22.6	2
18.9	3	22.7	2
19.0	3	22.8	2
19.1	3	22.9	2
19.2	3	23.0	2
19.3	3	23.1	1
19.4	3	23.2	1
19.5	3	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	1
20.4	2	24.2	1
20.5	2	24.3	1
20.6	2	24.4	1
20.7	2	24.5	1
20.8	2	24.6	1
20.9	2	24.7	1
21.0	2	24.8	1
21.1	2	24.9	1
21.2	2	25.0	1
21.3	2	25.1	0
21.4	2	25.2	0
21.5	2	25.3	0
21.6	2	25.4	0
21.7	2	25.5	0
21.8	2	25.6	0
21.9	2	25.7	0
22.0	2	25.8	0
22.1	2	25.9	0
22.2	2		
22.3	2		

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	74.0	0.30	0.00	7.70	4.66	I.09	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 160 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.34	0.00	0.30	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	160	12.2
Composite Watershed	160	12.2

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	5	7	10	28	56	106	160	160	109
Total (cfs)	5	7	10	28	56	106	160	160	109

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	67	47	35	27	19	16	14	12	11
Total (cfs)	67	47	35	27	19	16	14	12	11

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	10	9	8	7	7	6	5	5	5
Total (cfs)	10	9	8	7	7	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	4	4	3	3	0
Total (cfs)	4	4	3	3	0

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MOP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	5	14.8	7
11.1	6	14.9	7
11.2	6	15.0	7
11.3	7	15.1	7
11.4	8	15.2	7
11.5	9	15.3	7
11.6	10	15.4	7
11.7	16	15.5	7
11.8	22	15.6	7
11.9	28	15.7	7
12.0	56	15.8	6
12.1	106	15.9	6
12.2	160	16.0	6
12.3	160	16.1	6
12.4	109	16.2	6
12.5	67	16.3	5
12.6	47	16.4	5
12.7	35	16.5	5
12.8	27	16.6	5
12.9	23	16.7	5
13.0	19	16.8	5
13.1	17	16.9	5
13.2	16	17.0	5
13.3	15	17.1	5
13.4	14	17.2	5
13.5	13	17.3	5
13.6	12	17.4	5
13.7	11	17.5	5
13.8	11	17.6	5
13.9	10	17.7	5
14.0	10	17.8	4
14.1	10	17.9	4
14.2	9	18.0	4
14.3	9	18.1	4
14.4	9	18.2	4
14.5	8	18.3	4
14.6	8	18.4	4
14.7	8	18.5	4

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 15:46:29
Watershed file: --> B:89046-PR.MDP
Hydrograph file: --> B:SCS100PR.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR PRE DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	4	22.4	3
18.7	4	22.5	3
18.8	4	22.6	3
18.9	4	22.7	2
19.0	4	22.8	2
19.1	4	22.9	2
19.2	4	23.0	2
19.3	4	23.1	2
19.4	4	23.2	2
19.5	4	23.3	2
19.6	3	23.4	2
19.7	3	23.5	2
19.8	3	23.6	2
19.9	3	23.7	2
20.0	3	23.8	2
20.1	3	23.9	2
20.2	3	24.0	2
20.3	3	24.1	1
20.4	3	24.2	1
20.5	3	24.3	1
20.6	3	24.4	1
20.7	3	24.5	1
20.8	3	24.6	1
20.9	3	24.7	1
21.0	3	24.8	1
21.1	3	24.9	1
21.2	3	25.0	1
21.3	3	25.1	1
21.4	3	25.2	1
21.5	3	25.3	1
21.6	3	25.4	0
21.7	3	25.5	0
21.8	3	25.6	0
21.9	3	25.7	0
22.0	3	25.8	0
22.1	3	25.9	0
22.2	3		
22.3	3		

TABULAR HYDROGRAPH METHOD MULTIPLE RUN OPTIONS (.MOP)

89046-PO <-- This File .WSD File --> 89046-PO

Note: Don't input .WSD file if CN & Tc/Tt files are entered below titles.

Title: SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

<--.RCN File Tc File: . Tt File: .

Specify TCT or TCM extension in the field after the Tc File and in the field after the Tt File.

Return Frequency (years):	2	10	25	100
24-hr Precip. (inches):	3.50	5.80	6.25	7.70
Hydrograph Files (.HYD):	SCS2PO	SCS10PO	SCS25PO	SCS100PO

SCS Distribution Type? II

Interpolate Ia/P (y/n)? Y

OUTPUT OPTIONS

* Input Data * Peaks * Hydrograph Summary * Hydrographs

<Esc> Exit <F5> Compute

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:35:55
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used
1	32.60	90.0	0.20	0.00	3.50	I	2.45	I.06 .10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 100 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	100	12.2
Composite Watershed	100	12.2

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MDP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	3	4	6	26	50	92	100	60	31
Total (cfs)	3	4	6	26	50	92	100	60	31

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	21	16	13	11	9	8	7	6	5
Total (cfs)	21	16	13	11	9	8	7	6	5

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	5	4	4	4	3	3	3	2	2
Total (cfs)	5	4	4	4	3	3	3	2	2

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	2	2	2	1	0
Total (cfs)	2	2	2	1	0

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	3	14.8	4
11.1	3	14.9	4
11.2	4	15.0	4
11.3	4	15.1	4
11.4	5	15.2	4
11.5	5	15.3	3
11.6	6	15.4	3
11.7	13	15.5	3
11.8	19	15.6	3
11.9	26	15.7	3
12.0	50	15.8	3
12.1	92	15.9	3
12.2	100	16.0	3
12.3	60	16.1	3
12.4	31	16.2	3
12.5	21	16.3	3
12.6	16	16.4	3
12.7	13	16.5	3
12.8	11	16.6	3
12.9	10	16.7	3
13.0	9	16.8	2
13.1	8	16.9	2
13.2	8	17.0	2
13.3	7	17.1	2
13.4	7	17.2	2
13.5	7	17.3	2
13.6	6	17.4	2
13.7	5	17.5	2
13.8	5	17.6	2
13.9	5	17.7	2
14.0	5	17.8	2
14.1	5	17.9	2
14.2	4	18.0	2
14.3	4	18.1	2
14.4	4	18.2	2
14.5	4	18.3	2
14.6	4	18.4	2

Return Frequency: 2 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MDP
Hydrograph file: --> B:SCS2PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	2	22.4	1
18.7	2	22.5	1
18.8	2	22.6	1
18.9	2	22.7	1
19.0	2	22.8	1
19.1	2	22.9	1
19.2	2	23.0	1
19.3	2	23.1	1
19.4	2	23.2	1
19.5	2	23.3	1
19.6	2	23.4	1
19.7	2	23.5	1
19.8	2	23.6	1
19.9	2	23.7	1
20.0	2	23.8	1
20.1	2	23.9	1
20.2	2	24.0	1
20.3	2	24.1	0
20.4	2	24.2	0
20.5	2	24.3	0
20.6	2	24.4	0
20.7	2	24.5	0
20.8	2	24.6	0
20.9	2	24.7	0
21.0	2	24.8	0
21.1	1	24.9	0
21.2	1	25.0	0
21.3	1	25.1	0
21.4	1	25.2	0
21.5	1	25.3	0
21.6	1	25.4	0
21.7	1	25.5	0
21.8	1	25.6	0
21.9	1	25.7	0
22.0	1	25.8	0
22.1	1	25.9	0
22.2	1		
22.3	1		

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	! !	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	5.80	!	4.65	I.04	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 189 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	189	12.2
Composite Watershed	189	12.2

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	5	7	11	50	95	175	189	114	59
Total (cfs)	5	7	11	50	95	175	189	114	59

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	39	30	24	20	17	14	13	12	10
Total (cfs)	39	30	24	20	17	14	13	12	10

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	9	8	8	7	6	6	5	5	5
Total (cfs)	9	8	8	7	6	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	4	4	3	3	0
Total (cfs)	4	4	3	3	0

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	5	14.8	7
11.1	6	14.9	7
11.2	6	15.0	7
11.3	7	15.1	7
11.4	8	15.2	7
11.5	10	15.3	6
11.6	11	15.4	6
11.7	24	15.5	6
11.8	37	15.6	6
11.9	50	15.7	6
12.0	95	15.8	6
12.1	175	15.9	6
12.2	189	16.0	6
12.3	114	16.1	6
12.4	59	16.2	6
12.5	39	16.3	5
12.6	30	16.4	5
12.7	24	16.5	5
12.8	20	16.6	5
12.9	18	16.7	5
13.0	17	16.8	5
13.1	15	16.9	5
13.2	14	17.0	5
13.3	13	17.1	5
13.4	13	17.2	5
13.5	13	17.3	5
13.6	12	17.4	5
13.7	11	17.5	5
13.8	10	17.6	5
13.9	9	17.7	5
14.0	9	17.8	4
14.1	9	17.9	4
14.2	8	18.0	4
14.3	8	18.1	4
14.4	8	18.2	4
14.5	8	18.3	4
14.6	8	18.4	4

Return Frequency: 10 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS10PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	4	22.4	3
18.7	4	22.5	3
18.8	4	22.6	3
18.9	4	22.7	2
19.0	4	22.8	2
19.1	4	22.9	2
19.2	4	23.0	2
19.3	4	23.1	2
19.4	4	23.2	2
19.5	4	23.3	2
19.6	3	23.4	2
19.7	3	23.5	2
19.8	3	23.6	2
19.9	3	23.7	2
20.0	3	23.8	2
20.1	3	23.9	2
20.2	3	24.0	2
20.3	3	24.1	1
20.4	3	24.2	1
20.5	3	24.3	1
20.6	3	24.4	1
20.7	3	24.5	1
20.8	3	24.6	1
20.9	3	24.7	1
21.0	3	24.8	1
21.1	3	24.9	1
21.2	3	25.0	1
21.3	3	25.1	1
21.4	3	25.2	1
21.5	3	25.3	1
21.6	3	25.4	0
21.7	3	25.5	0
21.8	3	25.6	0
21.9	3	25.7	0
22.0	3	25.8	0
22.1	3	25.9	0
22.2	3		
22.3	3		

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	Runoff (in)	Ia/p input/used	
1	32.60	90.0	0.20	0.00	6.25	5.09	I.04	.10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 207 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	Input Values * Tt (hr)	Rounded Values Tc (hr)	Rounded Values * Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	207	12.2
Composite Watershed	207	12.2

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	6	8	12	54	104	192	207	125	65
Total (cfs)	6	8	12	54	104	192	207	125	65

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	43	33	26	22	18	16	14	13	11
Total (cfs)	43	33	26	22	18	16	14	13	11

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	10	9	9	8	7	6	5	5	5
Total (cfs)	10	9	9	8	7	6	5	5	5

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	5	4	3	3	0
Total (cfs)	5	4	3	3	0

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	6	14.8	8
11.1	7	14.9	8
11.2	7	15.0	8
11.3	8	15.1	8
11.4	9	15.2	8
11.5	11	15.3	7
11.6	12	15.4	7
11.7	26	15.5	7
11.8	40	15.6	7
11.9	54	15.7	7
12.0	104	15.8	6
12.1	192	15.9	6
12.2	207	16.0	6
12.3	125	16.1	6
12.4	65	16.2	6
12.5	43	16.3	5
12.6	33	16.4	5
12.7	26	16.5	5
12.8	22	16.6	5
12.9	20	16.7	5
13.0	18	16.8	5
13.1	17	16.9	5
13.2	16	17.0	5
13.3	15	17.1	5
13.4	14	17.2	5
13.5	14	17.3	5
13.6	13	17.4	5
13.7	12	17.5	5
13.8	11	17.6	5
13.9	10	17.7	5
14.0	10	17.8	5
14.1	10	17.9	5
14.2	9	18.0	5
14.3	9	18.1	5
14.4	9	18.2	5
14.5	9	18.3	5
14.6	9	18.4	5

Return Frequency: 25 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MDP
Hydrograph file: --> B:SCS25PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	4	22.4	3
18.7	4	22.5	3
18.8	4	22.6	3
18.9	4	22.7	2
19.0	4	22.8	2
19.1	4	22.9	2
19.2	4	23.0	2
19.3	4	23.1	2
19.4	4	23.2	2
19.5	4	23.3	2
19.6	3	23.4	2
19.7	3	23.5	2
19.8	3	23.6	2
19.9	3	23.7	2
20.0	3	23.8	2
20.1	3	23.9	2
20.2	3	24.0	2
20.3	3	24.1	1
20.4	3	24.2	1
20.5	3	24.3	1
20.6	3	24.4	1
20.7	3	24.5	1
20.8	3	24.6	1
20.9	3	24.7	1
21.0	3	24.8	1
21.1	3	24.9	1
21.2	3	25.0	1
21.3	3	25.1	1
21.4	3	25.2	1
21.5	3	25.3	1
21.6	3	25.4	0
21.7	3	25.5	0
21.8	3	25.6	0
21.9	3	25.7	0
22.0	3	25.8	0
22.1	3	25.9	0
22.2	3		
22.3	3		

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MDP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Input Parameters Used to Compute Hydrograph <<<<

Subarea Description	AREA (acres)	CN	Tc (hrs)	* Tt (hrs)	Precip. (in)	I	Runoff (in)	Ia/p input/used
1	32.60	90.0	0.20	0.00	7.70	I	6.51	I.03 .10

* Travel time from subarea outfall to composite watershed outfall point.
I -- Subarea where user specified interpolation between Ia/p tables.

Total area = 32.60 acres or 0.05094 sq.mi
Peak discharge = 265 cfs

>>>> Computer Modifications of Input Parameters <<<<<

Subarea Description	Input Values Tc (hr)	* Tt (hr)	Rounded Values Tc (hr)	* Tt (hr)	Ia/p Interpolated (Yes/No)	Ia/p Messages
1	0.22	0.00	0.20	0.00	No	Computed Ia/p < .1

* Travel time from subarea outfall to composite watershed outfall point.

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

>>>> Summary of Subarea Times to Peak <<<<

Subarea	Peak Discharge at Composite Outfall (cfs)	Time to Peak at Composite Outfall (hrs)
1	265	12.2
Composite Watershed	265	12.2

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Composite Hydrograph Summary (cfs)

Subarea Description	11.0 hr	11.3 hr	11.6 hr	11.9 hr	12.0 hr	12.1 hr	12.2 hr	12.3 hr	12.4 hr
1	8	10	16	69	134	245	265	160	83
Total (cfs)	8	10	16	69	134	245	265	160	83

Subarea Description	12.5 hr	12.6 hr	12.7 hr	12.8 hr	13.0 hr	13.2 hr	13.4 hr	13.6 hr	13.8 hr
1	55	42	34	29	23	20	18	16	15
Total (cfs)	55	42	34	29	23	20	18	16	15

Subarea Description	14.0 hr	14.3 hr	14.6 hr	15.0 hr	15.5 hr	16.0 hr	16.5 hr	17.0 hr	17.5 hr
1	13	12	11	10	9	8	7	7	6
Total (cfs)	13	12	11	10	9	8	7	7	6

Subarea Description	18.0 hr	19.0 hr	20.0 hr	22.0 hr	26.0 hr
1	6	5	4	4	0
Total (cfs)	6	5	4	4	0

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
11.0	8	14.8	10
11.1	9	14.9	10
11.2	9	15.0	10
11.3	10	15.1	10
11.4	12	15.2	10
11.5	14	15.3	9
11.6	16	15.4	9
11.7	34	15.5	9
11.8	51	15.6	9
11.9	69	15.7	9
12.0	134	15.8	8
12.1	245	15.9	8
12.2	265	16.0	8
12.3	160	16.1	8
12.4	83	16.2	8
12.5	55	16.3	7
12.6	42	16.4	7
12.7	34	16.5	7
12.8	29	16.6	7
12.9	26	16.7	7
13.0	23	16.8	7
13.1	21	16.9	7
13.2	20	17.0	7
13.3	19	17.1	7
13.4	18	17.2	7
13.5	17	17.3	6
13.6	16	17.4	6
13.7	15	17.5	6
13.8	15	17.6	6
13.9	14	17.7	6
14.0	13	17.8	6
14.1	13	17.9	6
14.2	12	18.0	6
14.3	12	18.1	6
14.4	12	18.2	6
14.5	11	18.3	6
14.6	11	18.4	6

Return Frequency: 100 years

TR-55 TABULAR HYDROGRAPH METHOD
Type II. Distribution
(24 hr. Duration Storm)

Executed: 10-12-1994 16:29:03
Watershed file: --> B:89046-PO.MOP
Hydrograph file: --> B:SCS100PO.HYD

SCS INFLOW TO BMP 1
STONEHOUSE
24 HOUR POST DEVELOPMENT

Time (hrs)	Flow (cfs)	Time (hrs)	Flow (cfs)
18.6	5	22.4	4
18.7	5	22.5	4
18.8	5	22.6	3
18.9	5	22.7	3
19.0	5	22.8	3
19.1	5	22.9	3
19.2	5	23.0	3
19.3	5	23.1	3
19.4	5	23.2	3
19.5	5	23.3	3
19.6	4	23.4	3
19.7	4	23.5	3
19.8	4	23.6	2
19.9	4	23.7	2
20.0	4	23.8	2
20.1	4	23.9	2
20.2	4	24.0	2
20.3	4	24.1	2
20.4	4	24.2	2
20.5	4	24.3	2
20.6	4	24.4	2
20.7	4	24.5	2
20.8	4	24.6	1
20.9	4	24.7	1
21.0	4	24.8	1
21.1	4	24.9	1
21.2	4	25.0	1
21.3	4	25.1	1
21.4	4	25.2	1
21.5	4	25.3	1
21.6	4	25.4	1
21.7	4	25.5	1
21.8	4	25.6	0
21.9	4	25.7	0
22.0	4	25.8	0
22.1	4	25.9	0
22.2	4		
22.3	4		

POND-2 Version: 5.17
S/N: 1295130250

STONEHOUSE LA GRANGE BMP #1

CALCULATED 10-12-1994 15:19:16
DISK FILE: b:89046-1 .VOL

Planimeter scale: 1 inch = 25 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
73.00	0.00	0	0	0	0
74.00	4.00	2,500	2,500	833	833
76.00	12.20	7,625	14,491	9,661	10,494
78.00	17.70	11,063	27,872	18,581	29,075
80.00	24.50	15,313	39,390	26,260	55,335
80.10	31.80	19,875	52,633	1,754	57,090
82.00	39.65	24,781	66,849	42,338	99,428
82.50	51.20	32,000	84,942	14,157	113,585
83.25 Normal pool	55.00	34,375	99,541	24,885 3.18 acft	138,470
84.00	61.60	38,500	109,254	27,314	165,783
86.00	71.30	44,562	124,483	82,989	248,772
88.00	80.85	50,531	142,547	95,031	343,803
90.00	86.05	53,781	156,443	104,348	448,151

@ 67% Impervious – need 3.19 acft storage to be 9 Pt BMP.

Elevations With Areas Interpolated From
The Closest Two Planimeter Readings

87.25	-----	48,249	139,181	57,992	306,764

IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
73.25	0.0	
73.75	0.0	
74.25	0.0	
74.75	0.0	
75.25	0.0	
75.75	0.0	
76.25	0.0	
76.75	0.0	
77.25	0.0	
77.75	0.0	
78.25	0.0	
78.75	0.0	
79.25	0.0	
79.75	0.0	
80.25	0.0	
80.75	0.0	
81.25	0.0	
81.75	0.0	
82.25	0.0	
82.75	0.0	
83.25	0.0	
83.75	0.5	1
84.25	0.8	1
84.75	1.1	1
85.25	1.3	1
85.75	1.4	1
86.25	1.6	1
86.75	1.7	1
87.25	1.8	1 +2
87.75	22.6	1 +2
88.25	60.5	1 +2
88.75	113.6	1 +2 +3
89.25	190.9	1 +2 +3
89.75	272.4	1 +2 +3
90.00	0.0	

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outlet Structure File: b:89046-1 .STR
Planimeter Input File: b:89046-1 .VOL
Rating Table Output File: b:89046-1 .PND

Min. Elev.(ft) = 73.25 Max. Elev.(ft) = 90.001 Incr.(ft) = .5

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
ORIFICE-VC	1		->	1
STAND PIPE	2		->	2
WEIR-XY	3		->	3

Outflow rating table summary was stored in file:
b:89046-1 .PND

Outlet Structure File: B9046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 1 <<<<<<
(Input Data)

ORIFICE-VC
Orifice - Vertical Circular

E1 elev.(ft)?	83.251
E2 elev.(ft)?	90.001
Orifice coeff.?	.6
Invert elev.(ft)?	83.25
Datum elev.(ft)?	83.50
Diameter (ft)?	.50

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 2 <<<<<<
(Input Data)

STAND PIPE
Stand Pipe with weir or orifice flow

E1 elev.(ft)?	87.25
E2 elev.(ft)?	90.001
Crest elev.(ft)?	87.25
Diameter (ft)?	6.0
Weir coefficient?	3.1
Orifice coefficient?	.6
Start transition elev.(ft) @ ?	
Transition height (ft)?	

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

>>>>>> Structure No. 3 <<<<<<
(Input Data)

WEIR-XY
Weir - Defined by X, Y Coordinates
E1 (ft) =88.5 E2 (ft) =90

X dist.(ft)	Y elev.(ft)
0	90
4.5	88.5
14.5	88.5
19	90

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #1
ORIFICE-VC Orifice - Vertical Circular

Elevation (ft)	Q (cfs)	Computation Messages
73.25	0.0	E < E1=83.251
73.75	0.0	E < E1=83.251
74.25	0.0	E < E1=83.251
74.75	0.0	E < E1=83.251
75.25	0.0	E < E1=83.251
75.75	0.0	E < E1=83.251
76.25	0.0	E < E1=83.251
76.75	0.0	E < E1=83.251
77.25	0.0	E < E1=83.251
77.75	0.0	E < E1=83.251
78.25	0.0	E < E1=83.251
78.75	0.0	E < E1=83.251
79.25	0.0	E < E1=83.251
79.75	0.0	E < E1=83.251
80.25	0.0	E < E1=83.251
80.75	0.0	E < E1=83.251
81.25	0.0	E < E1=83.251
81.75	0.0	E < E1=83.251
82.25	0.0	E < E1=83.251
82.75	0.0	E < E1=83.251
83.25	0.0	E < E1=83.251
83.75	0.5	H =.25
84.25	0.8	H =.750
84.75	1.1	H =1.25
85.25	1.3	H =1.75
85.75	1.4	H =2.25
86.25	1.6	H =2.75
86.75	1.7	H =3.25
87.25	1.8	H =3.75
87.75	1.9	H =4.25
88.25	2.1	H =4.75
88.75	2.2	H =5.25
89.25	2.3	H =5.75
89.75	2.4	H =6.25
90.00	0.0	

C = .6 A = .1963496 sq.ft.
H (ft) = Table elev. - Datum elev. (83.5 ft)
Q (cfs) = C * A * sqr(2g * H)

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #2
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
73.25	0.0	E < Inv.El.= 87.25
73.75	0.0	E < E1=87.25
74.25	0.0	E < E1=87.25
74.75	0.0	E < E1=87.25
75.25	0.0	E < E1=87.25
75.75	0.0	E < E1=87.25
76.25	0.0	E < E1=87.25
76.75	0.0	E < E1=87.25
77.25	0.0	E < E1=87.25
77.75	0.0	E < E1=87.25
78.25	0.0	E < E1=87.25
78.75	0.0	E < E1=87.25
79.25	0.0	E < E1=87.25
79.75	0.0	E < E1=87.25
80.25	0.0	E < E1=87.25
80.75	0.0	E < E1=87.25
81.25	0.0	E < E1=87.25
81.75	0.0	E < E1=87.25
82.25	0.0	E < E1=87.25
82.75	0.0	E < E1=87.25
83.25	0.0	E < E1=87.25
83.75	0.0	E < E1=87.25
84.25	0.0	E < E1=87.25
84.75	0.0	E < E1=87.25
85.25	0.0	E < E1=87.25
85.75	0.0	E < E1=87.25
86.25	0.0	E < E1=87.25
86.75	0.0	E < E1=87.25
87.25	0.0	Weir: H =0.0
87.75	20.7	Weir: H =.5
88.25	58.4	Weir: H =1.0
88.75	107.3	Weir: H =1.5

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

>>>>> CONTINUED from previous page <<<<<

Outflow Rating Table for Structure #2
STAND PIPE Stand Pipe with weir or orifice flow

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages	
89.25	165.3	Weir:	H =2.0
89.75	215.3	Orifice:	H =2.5
90.00	0.0		

Weir Cw = 3.1 Weir length = 18.84956 ft
Orifice Co = .6 Orifice area = 28.27434 sq.ft.
Q (cfs) = (Cw * L * H**1.5) or (Co * A * sqr(2*g*H))
No transition used, transition height = 0.0
Weir equation = Orifice equation @ elev.= 89.57983 ft

Outlet Structure File: 89046-1 .STR

POND-2 Version: 5.17 S/N: 1295130250
Date Executed: Time Executed:

****
STONEHOUSE LA GRANGE BMP # 1

****

Outflow Rating Table for Structure #3
WEIR-XY Weir - Defined by X, Y Coordinates

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages	
73.25	0.0	E < Y min= 88.5	
73.75	0.0	E < Y min= 88.5	
74.25	0.0	E < Y min= 88.5	
74.75	0.0	E < Y min= 88.5	
75.25	0.0	E < Y min= 88.5	
75.75	0.0	E < Y min= 88.5	
76.25	0.0	E < Y min= 88.5	
76.75	0.0	E < Y min= 88.5	
77.25	0.0	E < Y min= 88.5	
77.75	0.0	E < Y min= 88.5	
78.25	0.0	E < Y min= 88.5	
78.75	0.0	E < Y min= 88.5	
79.25	0.0	E < Y min= 88.5	
79.75	0.0	E < Y min= 88.5	
80.25	0.0	E < Y min= 88.5	
80.75	0.0	E < Y min= 88.5	
81.25	0.0	E < Y min= 88.5	
81.75	0.0	E < Y min= 88.5	
82.25	0.0	E < Y min= 88.5	
82.75	0.0	E < Y min= 88.5	
83.25	0.0	E < Y min= 88.5	
83.75	0.0	E < Y min= 88.5	
84.25	0.0	E < Y min= 88.5	
84.75	0.0	E < Y min= 88.5	
85.25	0.0	E < Y min= 88.5	
85.75	0.0	E < Y min= 88.5	
86.25	0.0	E < Y min= 88.5	
86.75	0.0	E < Y min= 88.5	
87.25	0.0	E < E1=88.5	
87.75	0.0	E < E1=88.5	
88.25	0.0	E < E1=88.5	
88.75	4.1	W(ft)=11.5	Max. D(ft)=.25
89.25	23.3	W(ft)=14.5	Max. D(ft)=.750
89.75	54.8	W(ft)=17.5	Max. D(ft)=1.25
90.00	0.0	E = or > E2=90	

MULTIPLE STORM ROUTING FOR PONDS (.MSR)

89046-2 <-- This File
Title: SCS INFLOW TO BMP 1
STONEHOUSE

Storm Comments	Return Frequency (years)	Inflow Hydrograph (.HYD)		Pond Rating Table File (.PND)		Starting W.S.Elev. (feet)		Outflow Hydrograph (.HYD)
	2	SCS2PO	–	89046-1	@	83.25	–	SCS2OUT
	10	SCS10PO	–	89046-1	@	83.25	–	SCS10OUT
	25	SCS25PO	–	89046-1	@	83.25	–	SCS25OUT
	100	SCS100PO	–	89046-1	@	83.25	–	SCS100OU
			–		@		–	

OUTPUT OPTIONS

* Input Data * Routing Computations * Routing Summary Plots

NOTE: If you are using 'Outlet Structures(.STR)' for computing your Q vs.E rating table, you must compute a PND file for use with this MSR option. If W.S. Elev. is left blank, the first elevation in PND will be used. If Outflow HYD is left blank, an outflow HYD file will not be stored.

<Esc> Exit <F5> Compute

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*************************
*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS2PD .HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
73.25	0.0	13
73.75	0.0	352
74.25	0.0	1,519
74.75	0.0	3,282
75.25	0.0	5,643
75.75	0.0	8,688
76.25	0.0	12,449
76.75	0.0	16,663
77.25	0.0	21,296
77.75	0.0	26,368
78.25	0.0	31,902
78.75	0.0	37,933
79.25	0.0	44,485
79.75	0.0	51,579
80.25	0.0	60,098
80.75	0.0	70,531
81.25	0.0	81,597
81.75	0.0	93,317
82.25	0.0	106,055
82.75	0.0	121,682
83.25	0.0	138,470
83.75	0.5	156,334
84.25	0.8	175,500
84.75	1.1	195,488
85.25	1.3	216,226
85.75	1.4	237,729
86.25	1.6	260,003
86.75	1.7	283,014
87.25	1.8	306,764
87.75	22.6	331,266
88.25	60.5	356,486

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.1	0.1
2.0	2.0
8.4	8.4
18.2	18.2
31.3	31.3
48.3	48.3
69.2	69.2
92.6	92.6
118.3	118.3
146.5	146.5
177.2	177.2
210.7	210.7
247.1	247.1
286.5	286.5
333.9	333.9
391.8	391.8
453.3	453.3
518.4	518.4
589.2	589.2
676.0	676.0
769.3	769.3
868.5	869.0
975.0	975.8
1086.0	1087.1
1201.3	1202.6
1320.7	1322.1
1444.5	1446.1
1572.3	1574.0
1704.2	1706.0
1840.4	1863.0
1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

EXECUTED: 01-04-1995 15:20:38 Return Freq: 2 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	3.00	-----	769.3	769.3	0.00	83.25
666.0	3.00	6.0	775.2	775.3	0.03	83.28
672.0	4.00	7.0	782.1	782.2	0.06	83.31
678.0	4.00	8.0	789.9	790.1	0.10	83.35
684.0	5.00	9.0	798.6	798.9	0.15	83.40
690.0	5.00	10.0	808.2	808.6	0.20	83.45
696.0	6.00	11.0	818.7	819.2	0.25	83.50
702.0	13.00	19.0	837.0	837.7	0.34	83.59
708.0	19.00	32.0	868.0	869.0	0.50	83.75
714.0	26.00	45.0	911.8	913.0	0.62	83.96
720.0	50.00	76.0	986.1	987.8	0.83	84.30
726.0	92.00	142.0	1125.7	1128.1	1.17	84.93
732.0	100.00	192.0	1315.0	1317.7	1.40	85.73
738.0	60.00	160.0	1471.7	1475.0	1.62	86.36
744.0	31.00	91.0	1559.3	1562.7	1.69	86.71
750.0	21.00	52.0	1607.9	1611.3	1.73	86.89
756.0	16.00	37.0	1641.4	1644.9	1.75	87.02
762.0	13.00	29.0	1666.8	1670.4	1.77	87.11
768.0	11.00	24.0	1687.2	1690.8	1.79	87.19
774.0	10.00	21.0	1704.1	1708.2	2.09	87.26
780.0	9.00	19.0	1714.9	1723.1	4.06	87.30
786.0	8.00	17.0	1721.5	1731.9	5.23	87.33
792.0	8.00	16.0	1725.5	1737.5	5.97	87.35
798.0	8.00	16.0	1728.5	1741.5	6.51	87.36
804.0	7.00	15.0	1730.0	1743.5	6.77	87.37
810.0	7.00	14.0	1730.3	1744.0	6.83	87.37
816.0	6.00	13.0	1729.8	1743.3	6.74	87.37
822.0	6.00	12.0	1728.8	1741.8	6.55	87.36
828.0	5.00	11.0	1727.2	1739.8	6.27	87.36
834.0	5.00	10.0	1725.4	1737.2	5.93	87.35
840.0	5.00	10.0	1724.0	1735.4	5.69	87.34
846.0	5.00	10.0	1723.0	1734.0	5.50	87.34
852.0	4.00	9.0	1721.5	1732.0	5.24	87.33
858.0	4.00	8.0	1719.7	1729.5	4.91	87.32
864.0	4.00	8.0	1718.3	1727.7	4.67	87.32
870.0	4.00	8.0	1717.4	1726.3	4.49	87.31
876.0	4.00	8.0	1716.6	1725.4	4.36	87.31
882.0	4.00	8.0	1716.1	1724.6	4.27	87.31
888.0	4.00	8.0	1715.7	1724.1	4.19	87.31
894.0	4.00	8.0	1715.4	1723.7	4.14	87.31
900.0	4.00	8.0	1715.2	1723.4	4.11	87.31
906.0	4.00	8.0	1715.1	1723.2	4.08	87.30
912.0	4.00	8.0	1715.0	1723.1	4.06	87.30
918.0	3.00	7.0	1714.1	1722.0	3.91	87.30
924.0	3.00	6.0	1712.8	1720.1	3.67	87.29

EXECUTED: 01-04-1995 15:20:38 Return Freq: 2 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	3.00	6.0	1711.8	1718.8	3.49	87.29
936.0	3.00	6.0	1711.1	1717.8	3.36	87.29
942.0	3.00	6.0	1710.6	1717.1	3.27	87.29
948.0	3.00	6.0	1710.2	1716.6	3.19	87.28
954.0	3.00	6.0	1709.9	1716.2	3.14	87.28
960.0	3.00	6.0	1709.7	1715.9	3.11	87.28
966.0	3.00	6.0	1709.5	1715.7	3.08	87.28
972.0	3.00	6.0	1709.4	1715.5	3.06	87.28
978.0	3.00	6.0	1709.3	1715.4	3.04	87.28
984.0	3.00	6.0	1709.3	1715.3	3.03	87.28
990.0	3.00	6.0	1709.2	1715.3	3.02	87.28
996.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1002.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1008.0	2.00	5.0	1708.4	1714.2	2.88	87.28
1014.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1020.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1026.0	2.00	4.0	1705.5	1710.2	2.35	87.26
1032.0	2.00	4.0	1705.0	1709.5	2.26	87.26
1038.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1044.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1050.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1056.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1062.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1068.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1074.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1080.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1086.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1092.0	2.00	4.0	1703.6	1707.6	2.01	87.26
1098.0	2.00	4.0	1703.6	1707.6	2.01	87.26
1104.0	2.00	4.0	1703.6	1707.6	2.01	87.25
1110.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1116.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1122.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1128.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1134.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1140.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1146.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1152.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1158.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1164.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1170.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1176.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1182.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1188.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1194.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1200.0	2.00	4.0	1703.6	1707.6	2.00	87.25

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1212.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1218.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1224.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1230.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1236.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1242.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1248.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1254.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1260.0	2.00	4.0	1703.6	1707.6	2.00	87.25
1266.0	1.00	3.0	1702.8	1706.6	1.87	87.25
1272.0	1.00	2.0	1701.2	1704.8	1.80	87.25
1278.0	1.00	2.0	1699.6	1703.2	1.80	87.24
1284.0	1.00	2.0	1698.0	1701.6	1.80	87.23
1290.0	1.00	2.0	1696.4	1700.0	1.80	87.23
1296.0	1.00	2.0	1694.9	1698.4	1.79	87.22
1302.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1308.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1314.0	1.00	2.0	1690.1	1693.7	1.79	87.20
1320.0	1.00	2.0	1688.5	1692.1	1.79	87.20
1326.0	1.00	2.0	1686.9	1690.5	1.79	87.19
1332.0	1.00	2.0	1685.4	1688.9	1.79	87.19
1338.0	1.00	2.0	1683.8	1687.4	1.79	87.18
1344.0	1.00	2.0	1682.2	1685.8	1.78	87.17
1350.0	1.00	2.0	1680.7	1684.2	1.78	87.17
1356.0	1.00	2.0	1679.1	1682.7	1.78	87.16
1362.0	1.00	2.0	1677.5	1681.1	1.78	87.16
1368.0	1.00	2.0	1676.0	1679.5	1.78	87.15
1374.0	1.00	2.0	1674.4	1678.0	1.78	87.14
1380.0	1.00	2.0	1672.9	1676.4	1.78	87.14
1386.0	1.00	2.0	1671.3	1674.9	1.78	87.13
1392.0	1.00	2.0	1669.8	1673.3	1.78	87.13
1398.0	1.00	2.0	1668.2	1671.8	1.77	87.12
1404.0	1.00	2.0	1666.7	1670.2	1.77	87.11
1410.0	1.00	2.0	1665.1	1668.7	1.77	87.11
1416.0	1.00	2.0	1663.6	1667.1	1.77	87.10
1422.0	1.00	2.0	1662.0	1665.6	1.77	87.10
1428.0	1.00	2.0	1660.5	1664.0	1.77	87.09
1434.0	1.00	2.0	1659.0	1662.5	1.77	87.09
1440.0	0.00	1.0	1656.4	1660.0	1.77	87.08
1446.0	0.00	0.0	1652.9	1656.4	1.76	87.06
1452.0	0.00	0.0	1649.4	1652.9	1.76	87.05
1458.0	0.00	0.0	1645.9	1649.4	1.76	87.04
1464.0	0.00	0.0	1642.4	1645.9	1.75	87.02
1470.0	0.00	0.0	1638.9	1642.4	1.75	87.01
1476.0	0.00	0.0	1635.4	1638.9	1.75	87.00

EXECUTED: 01-04-1995 15:20:38 Return Freq: 2 years

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	0.00	0.0	1631.9	1635.4	1.75	86.98
1488.0	0.00	0.0	1628.4	1631.9	1.74	86.97
1494.0	0.00	0.0	1624.9	1628.4	1.74	86.96
1500.0	0.00	0.0	1621.4	1624.9	1.74	86.94
1506.0	0.00	0.0	1618.0	1621.4	1.74	86.93
1512.0	0.00	0.0	1614.5	1618.0	1.73	86.92
1518.0	0.00	0.0	1611.0	1614.5	1.73	86.90
1524.0	0.00	0.0	1607.6	1611.0	1.73	86.89
1530.0	0.00	0.0	1604.1	1607.6	1.73	86.88
1536.0	0.00	0.0	1600.7	1604.1	1.72	86.86
1542.0	0.00	0.0	1597.2	1600.7	1.72	86.85
1548.0	0.00	0.0	1593.8	1597.2	1.72	86.84
1554.0	0.00	0.0	1590.4	1593.8	1.72	86.83

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS2PO .HYD
Outflow Hydrograph: b:SCS2OUT .HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 100.00 cfs
Peak Outflow = 6.83 cfs
Peak Elevation = 87.37 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 138,470 cu-ft
Peak Storage From Storm = 174,220 cu-ft

Total Storage in Pond = 312,690 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
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Inflow Hydrograph: b:SCS10PO .HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
73.25	0.0	13
73.75	0.0	352
74.25	0.0	1,519
74.75	0.0	3,282
75.25	0.0	5,643
75.75	0.0	8,688
76.25	0.0	12,449
76.75	0.0	16,663
77.25	0.0	21,296
77.75	0.0	26,368
78.25	0.0	31,902
78.75	0.0	37,933
79.25	0.0	44,485
79.75	0.0	51,579
80.25	0.0	60,098
80.75	0.0	70,531
81.25	0.0	81,597
81.75	0.0	93,317
82.25	0.0	106,055
82.75	0.0	121,682
83.25	0.0	138,470
83.75	0.5	156,334
84.25	0.8	175,500
84.75	1.1	195,488
85.25	1.3	216,226
85.75	1.4	237,729
86.25	1.6	260,003
86.75	1.7	283,014
87.25	1.8	306,764
87.75	22.6	331,266
88.25	60.5	356,486

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.1	0.1
2.0	2.0
8.4	8.4
18.2	18.2
31.3	31.3
48.3	48.3
69.2	69.2
92.6	92.6
118.3	118.3
146.5	146.5
177.2	177.2
210.7	210.7
247.1	247.1
286.5	286.5
333.9	333.9
391.8	391.8
453.3	453.3
518.4	518.4
589.2	589.2
676.0	676.0
769.3	769.3
868.5	869.0
975.0	975.8
1086.0	1087.1
1201.3	1202.6
1320.7	1322.1
1444.5	1446.1
1572.3	1574.0
1704.2	1706.0
1840.4	1863.0
1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	5.00	-----	769.3	769.3	0.00	83.25
666.0	6.00	11.0	780.2	780.3	0.06	83.31
672.0	6.00	12.0	791.9	792.2	0.11	83.36
678.0	7.00	13.0	804.6	804.9	0.18	83.43
684.0	8.00	15.0	819.1	819.6	0.25	83.50
690.0	10.00	18.0	836.4	837.1	0.34	83.59
696.0	11.00	21.0	856.5	857.4	0.44	83.69
702.0	24.00	35.0	890.4	891.5	0.56	83.86
708.0	37.00	61.0	949.9	951.4	0.73	84.14
714.0	50.00	87.0	1035.0	1036.9	0.96	84.52
720.0	95.00	145.0	1177.5	1180.0	1.26	85.15
726.0	175.00	270.0	1444.3	1447.5	1.60	86.26
732.0	189.00	364.0	1777.6	1808.3	15.35	87.58
738.0	114.00	303.0	1938.1	2080.6	71.24	88.35
744.0	59.00	173.0	1952.0	2111.1	79.52	88.43
750.0	39.00	98.0	1924.1	2050.0	62.96	88.27
756.0	30.00	69.0	1892.5	1993.1	50.31	88.12
762.0	24.00	54.0	1865.7	1946.5	40.38	87.98
768.0	20.00	44.0	1844.6	1909.7	32.56	87.88
774.0	18.00	38.0	1829.1	1882.6	26.78	87.81
780.0	17.00	35.0	1818.4	1864.1	22.83	87.75
786.0	16.00	33.0	1809.3	1851.4	21.07	87.71
792.0	14.00	30.0	1800.3	1839.3	19.46	87.67
798.0	14.00	28.0	1792.3	1828.3	18.01	87.64
804.0	13.00	27.0	1785.7	1819.3	16.81	87.61
810.0	12.00	25.0	1779.4	1810.7	15.67	87.58
816.0	12.00	24.0	1774.0	1803.4	14.70	87.56
822.0	11.00	23.0	1769.3	1797.0	13.85	87.54
828.0	10.00	21.0	1764.3	1790.3	12.96	87.52
834.0	9.00	19.0	1759.2	1783.3	12.04	87.50
840.0	9.00	18.0	1754.8	1777.2	11.24	87.48
846.0	9.00	18.0	1751.5	1772.8	10.64	87.46
852.0	8.00	17.0	1748.3	1768.5	10.08	87.45
858.0	8.00	16.0	1745.3	1764.3	9.53	87.44
864.0	8.00	16.0	1743.0	1761.3	9.12	87.43
870.0	8.00	16.0	1741.4	1759.0	8.82	87.42
876.0	8.00	16.0	1740.2	1757.4	8.61	87.41
882.0	8.00	16.0	1739.3	1756.2	8.44	87.41
888.0	8.00	16.0	1738.6	1755.3	8.33	87.41
894.0	7.00	15.0	1737.4	1753.6	8.11	87.40
900.0	7.00	14.0	1735.8	1751.4	7.81	87.39
906.0	7.00	14.0	1734.6	1749.8	7.60	87.39
912.0	7.00	14.0	1733.7	1748.6	7.44	87.39
918.0	6.00	13.0	1732.3	1746.7	7.19	87.38
924.0	6.00	12.0	1730.6	1744.3	6.87	87.37

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	6.00	12.0	1729.3	1742.6	6.64	87.37
936.0	6.00	12.0	1728.4	1741.3	6.47	87.36
942.0	6.00	12.0	1727.7	1740.4	6.35	87.36
948.0	6.00	12.0	1727.1	1739.7	6.26	87.36
954.0	6.00	12.0	1726.8	1739.1	6.19	87.36
960.0	6.00	12.0	1726.5	1738.8	6.14	87.35
966.0	6.00	12.0	1726.3	1738.5	6.10	87.35
972.0	6.00	12.0	1726.1	1738.3	6.07	87.35
978.0	5.00	11.0	1725.3	1737.1	5.92	87.35
984.0	5.00	10.0	1723.9	1735.3	5.68	87.34
990.0	5.00	10.0	1722.9	1733.9	5.50	87.34
996.0	5.00	10.0	1722.2	1732.9	5.37	87.34
1002.0	5.00	10.0	1721.7	1732.2	5.27	87.33
1008.0	5.00	10.0	1721.3	1731.7	5.20	87.33
1014.0	5.00	10.0	1721.0	1731.3	5.15	87.33
1020.0	5.00	10.0	1720.8	1731.0	5.11	87.33
1026.0	5.00	10.0	1720.6	1730.8	5.08	87.33
1032.0	5.00	10.0	1720.5	1730.6	5.06	87.33
1038.0	5.00	10.0	1720.4	1730.5	5.04	87.33
1044.0	5.00	10.0	1720.4	1730.4	5.03	87.33
1050.0	5.00	10.0	1720.3	1730.4	5.02	87.33
1056.0	5.00	10.0	1720.3	1730.3	5.02	87.33
1062.0	5.00	10.0	1720.3	1730.3	5.01	87.33
1068.0	4.00	9.0	1719.5	1729.3	4.88	87.32
1074.0	4.00	8.0	1718.2	1727.5	4.64	87.32
1080.0	4.00	8.0	1717.3	1726.2	4.47	87.31
1086.0	4.00	8.0	1716.6	1725.3	4.35	87.31
1092.0	4.00	8.0	1716.1	1724.6	4.26	87.31
1098.0	4.00	8.0	1715.7	1724.1	4.19	87.31
1104.0	4.00	8.0	1715.4	1723.7	4.14	87.31
1110.0	4.00	8.0	1715.2	1723.4	4.10	87.31
1116.0	4.00	8.0	1715.1	1723.2	4.07	87.30
1122.0	4.00	8.0	1714.9	1723.1	4.05	87.30
1128.0	4.00	8.0	1714.9	1722.9	4.04	87.30
1134.0	4.00	8.0	1714.8	1722.9	4.03	87.30
1140.0	4.00	8.0	1714.8	1722.8	4.02	87.30
1146.0	4.00	8.0	1714.7	1722.8	4.02	87.30
1152.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1158.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1164.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1170.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1176.0	3.00	7.0	1713.9	1721.7	3.87	87.30
1182.0	3.00	6.0	1712.6	1719.9	3.64	87.29
1188.0	3.00	6.0	1711.7	1718.6	3.47	87.29
1194.0	3.00	6.0	1711.0	1717.7	3.35	87.29
1200.0	3.00	6.0	1710.5	1717.0	3.25	87.28

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	3.00	6.0	1710.1	1716.5	3.19	87.28
1212.0	3.00	6.0	1709.9	1716.1	3.14	87.28
1218.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1224.0	3.00	6.0	1709.5	1715.7	3.07	87.28
1230.0	3.00	6.0	1709.4	1715.5	3.05	87.28
1236.0	3.00	6.0	1709.3	1715.4	3.04	87.28
1242.0	3.00	6.0	1709.3	1715.3	3.03	87.28
1248.0	3.00	6.0	1709.2	1715.3	3.02	87.28
1254.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1260.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1266.0	3.00	6.0	1709.1	1715.2	3.01	87.28
1272.0	3.00	6.0	1709.1	1715.1	3.01	87.28
1278.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1284.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1290.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1296.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1302.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1308.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1314.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1320.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1326.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1332.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1338.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1344.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1350.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1356.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1362.0	2.00	5.0	1708.4	1714.1	2.87	87.28
1368.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1374.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1380.0	2.00	4.0	1705.5	1710.2	2.34	87.26
1386.0	2.00	4.0	1705.0	1709.5	2.25	87.26
1392.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1398.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1404.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1410.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1416.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1422.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1428.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1434.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1440.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1446.0	1.00	3.0	1702.9	1706.6	1.88	87.25
1452.0	1.00	2.0	1701.3	1704.9	1.80	87.25
1458.0	1.00	2.0	1699.7	1703.3	1.80	87.24
1464.0	1.00	2.0	1698.1	1701.7	1.80	87.23
1470.0	1.00	2.0	1696.5	1700.1	1.80	87.23
1476.0	1.00	2.0	1694.9	1698.5	1.79	87.22

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PD .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1488.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1494.0	1.00	2.0	1690.2	1693.7	1.79	87.20
1500.0	1.00	2.0	1688.6	1692.2	1.79	87.20
1506.0	1.00	2.0	1687.0	1690.6	1.79	87.19
1512.0	1.00	2.0	1685.4	1689.0	1.79	87.19
1518.0	1.00	2.0	1683.9	1687.4	1.79	87.18
1524.0	0.00	1.0	1681.3	1684.9	1.78	87.17
1530.0	0.00	0.0	1677.7	1681.3	1.78	87.16
1536.0	0.00	0.0	1674.2	1677.7	1.78	87.14
1542.0	0.00	0.0	1670.6	1674.2	1.78	87.13
1548.0	0.00	0.0	1667.1	1670.6	1.77	87.12
1554.0	0.00	0.0	1663.5	1667.1	1.77	87.10

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS10PO .HYD
Outflow Hydrograph: b:SCS10OUT.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	189.00 cfs
Peak Outflow	=	79.52 cfs
Peak Elevation	=	88.43 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	138,470 cu-ft
Peak Storage From Storm	=	227,211 cu-ft
Total Storage in Pond	=	365,681 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS25PO .HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
73.25	0.0	13	0.1	0.1
73.75	0.0	352	2.0	2.0
74.25	0.0	1,519	8.4	8.4
74.75	0.0	3,282	18.2	18.2
75.25	0.0	5,643	31.3	31.3
75.75	0.0	8,688	48.3	48.3
76.25	0.0	12,449	69.2	69.2
76.75	0.0	16,663	92.6	92.6
77.25	0.0	21,296	118.3	118.3
77.75	0.0	26,368	146.5	146.5
78.25	0.0	31,902	177.2	177.2
78.75	0.0	37,933	210.7	210.7
79.25	0.0	44,485	247.1	247.1
79.75	0.0	51,579	286.5	286.5
80.25	0.0	60,098	333.9	333.9
80.75	0.0	70,531	391.8	391.8
81.25	0.0	81,597	453.3	453.3
81.75	0.0	93,317	518.4	518.4
82.25	0.0	106,055	589.2	589.2
82.75	0.0	121,682	676.0	676.0
83.25	0.0	138,470	769.3	769.3
83.75	0.5	156,334	868.5	869.0
84.25	0.8	175,500	975.0	975.8
84.75	1.1	195,488	1086.0	1087.1
85.25	1.3	216,226	1201.3	1202.6
85.75	1.4	237,729	1320.7	1322.1
86.25	1.6	260,003	1444.5	1446.1
86.75	1.7	283,014	1572.3	1574.0
87.25	1.8	306,764	1704.2	1706.0
87.75	22.6	331,266	1840.4	1863.0
88.25	60.5	356,486	1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	6.00	-----	769.3	769.3	0.00	83.25
666.0	7.00	13.0	782.1	782.3	0.07	83.32
672.0	7.00	14.0	795.9	796.1	0.13	83.38
678.0	8.00	15.0	810.5	810.9	0.21	83.46
684.0	9.00	17.0	826.9	827.5	0.29	83.54
690.0	11.00	20.0	846.1	846.9	0.39	83.64
696.0	12.00	23.0	868.1	869.1	0.50	83.75
702.0	26.00	38.0	904.9	906.1	0.60	83.92
708.0	40.00	66.0	969.3	970.9	0.79	84.23
714.0	54.00	94.0	1061.2	1063.3	1.04	84.64
720.0	104.00	158.0	1216.6	1219.2	1.31	85.32
726.0	192.00	296.0	1509.3	1512.6	1.65	86.51
732.0	207.00	399.0	1843.8	1908.3	32.25	87.88
738.0	125.00	332.0	1981.6	2175.8	97.08	88.59
744.0	65.00	190.0	1979.7	2171.6	95.95	88.58
750.0	43.00	108.0	1941.4	2087.7	73.19	88.37
756.0	33.00	76.0	1906.4	2017.4	55.47	88.18
762.0	26.00	59.0	1876.6	1965.4	44.41	88.04
768.0	22.00	48.0	1853.2	1924.6	35.72	87.92
774.0	20.00	42.0	1836.2	1895.2	29.45	87.84
780.0	18.00	38.0	1824.2	1874.2	25.00	87.78
786.0	17.00	35.0	1815.0	1859.2	22.11	87.74
792.0	16.00	33.0	1806.8	1848.0	20.62	87.70
798.0	15.00	31.0	1799.3	1837.8	19.26	87.67
804.0	14.00	29.0	1792.3	1828.3	18.00	87.64
810.0	14.00	28.0	1786.4	1820.3	16.94	87.61
816.0	13.00	27.0	1781.3	1813.4	16.03	87.59
822.0	12.00	25.0	1776.1	1806.3	15.09	87.57
828.0	11.00	23.0	1770.9	1799.1	14.14	87.55
834.0	10.00	21.0	1765.5	1791.9	13.18	87.52
840.0	10.00	20.0	1760.8	1785.5	12.33	87.50
846.0	10.00	20.0	1757.4	1780.8	11.71	87.49
852.0	9.00	19.0	1754.2	1776.4	11.13	87.47
858.0	9.00	18.0	1751.0	1772.2	10.56	87.46
864.0	9.00	18.0	1748.7	1769.0	10.15	87.45
870.0	9.00	18.0	1747.0	1766.7	9.84	87.44
876.0	9.00	18.0	1745.8	1765.0	9.62	87.44
882.0	9.00	18.0	1744.9	1763.8	9.46	87.43
888.0	8.00	17.0	1743.5	1761.9	9.20	87.43
894.0	8.00	16.0	1741.7	1759.5	8.88	87.42
900.0	8.00	16.0	1740.4	1757.7	8.65	87.41
906.0	8.00	16.0	1739.5	1756.4	8.48	87.41
912.0	8.00	16.0	1738.8	1755.5	8.35	87.41
918.0	7.00	15.0	1737.5	1753.8	8.13	87.40
924.0	7.00	14.0	1735.9	1751.5	7.83	87.39

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	7.00	14.0	1734.6	1749.9	7.61	87.39
936.0	7.00	14.0	1733.8	1748.6	7.45	87.39
942.0	7.00	14.0	1733.1	1747.8	7.33	87.38
948.0	6.00	13.0	1731.9	1746.1	7.11	87.38
954.0	6.00	12.0	1730.2	1743.9	6.81	87.37
960.0	6.00	12.0	1729.1	1742.2	6.60	87.37
966.0	6.00	12.0	1728.2	1741.1	6.44	87.36
972.0	6.00	12.0	1727.5	1740.2	6.32	87.36
978.0	5.00	11.0	1726.3	1738.5	6.11	87.35
984.0	5.00	10.0	1724.7	1736.3	5.81	87.35
990.0	5.00	10.0	1723.5	1734.7	5.60	87.34
996.0	5.00	10.0	1722.6	1733.5	5.44	87.34
1002.0	5.00	10.0	1722.0	1732.6	5.32	87.33
1008.0	5.00	10.0	1721.5	1732.0	5.24	87.33
1014.0	5.00	10.0	1721.2	1731.5	5.17	87.33
1020.0	5.00	10.0	1720.9	1731.2	5.13	87.33
1026.0	5.00	10.0	1720.7	1730.9	5.09	87.33
1032.0	5.00	10.0	1720.6	1730.7	5.07	87.33
1038.0	5.00	10.0	1720.5	1730.6	5.05	87.33
1044.0	5.00	10.0	1720.4	1730.5	5.04	87.33
1050.0	5.00	10.0	1720.3	1730.4	5.03	87.33
1056.0	5.00	10.0	1720.3	1730.3	5.02	87.33
1062.0	5.00	10.0	1720.3	1730.3	5.01	87.33
1068.0	5.00	10.0	1720.2	1730.3	5.01	87.33
1074.0	5.00	10.0	1720.2	1730.2	5.01	87.33
1080.0	5.00	10.0	1720.2	1730.2	5.01	87.33
1086.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1092.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1098.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1104.0	5.00	10.0	1720.2	1730.2	5.00	87.33
1110.0	4.00	9.0	1719.5	1729.2	4.87	87.32
1116.0	4.00	8.0	1718.2	1727.5	4.64	87.32
1122.0	4.00	8.0	1717.2	1726.2	4.47	87.31
1128.0	4.00	8.0	1716.6	1725.2	4.34	87.31
1134.0	4.00	8.0	1716.0	1724.6	4.25	87.31
1140.0	4.00	8.0	1715.7	1724.0	4.19	87.31
1146.0	4.00	8.0	1715.4	1723.7	4.14	87.31
1152.0	4.00	8.0	1715.2	1723.4	4.10	87.31
1158.0	4.00	8.0	1715.1	1723.2	4.07	87.30
1164.0	4.00	8.0	1714.9	1723.1	4.05	87.30
1170.0	4.00	8.0	1714.9	1722.9	4.04	87.30
1176.0	3.00	7.0	1714.1	1721.9	3.90	87.30
1182.0	3.00	6.0	1712.8	1720.1	3.66	87.29
1188.0	3.00	6.0	1711.8	1718.8	3.48	87.29
1194.0	3.00	6.0	1711.1	1717.8	3.36	87.29
1200.0	3.00	6.0	1710.5	1717.1	3.26	87.29

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	3.00	6.0	1710.2	1716.5	3.19	87.28
1212.0	3.00	6.0	1709.9	1716.2	3.14	87.28
1218.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1224.0	3.00	6.0	1709.5	1715.7	3.08	87.28
1230.0	3.00	6.0	1709.4	1715.5	3.06	87.28
1236.0	3.00	6.0	1709.3	1715.4	3.04	87.28
1242.0	3.00	6.0	1709.3	1715.3	3.03	87.28
1248.0	3.00	6.0	1709.2	1715.3	3.02	87.28
1254.0	3.00	6.0	1709.2	1715.2	3.02	87.28
1260.0	3.00	6.0	1709.2	1715.2	3.01	87.28
1266.0	3.00	6.0	1709.1	1715.2	3.01	87.28
1272.0	3.00	6.0	1709.1	1715.1	3.01	87.28
1278.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1284.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1290.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1296.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1302.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1308.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1314.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1320.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1326.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1332.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1338.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1344.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1350.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1356.0	3.00	6.0	1709.1	1715.1	3.00	87.28
1362.0	2.00	5.0	1708.4	1714.1	2.87	87.28
1368.0	2.00	4.0	1707.1	1712.4	2.64	87.27
1374.0	2.00	4.0	1706.2	1711.1	2.47	87.27
1380.0	2.00	4.0	1705.5	1710.2	2.34	87.26
1386.0	2.00	4.0	1705.0	1709.5	2.25	87.26
1392.0	2.00	4.0	1704.6	1709.0	2.19	87.26
1398.0	2.00	4.0	1704.3	1708.6	2.14	87.26
1404.0	2.00	4.0	1704.1	1708.3	2.10	87.26
1410.0	2.00	4.0	1704.0	1708.1	2.07	87.26
1416.0	2.00	4.0	1703.9	1708.0	2.05	87.26
1422.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1428.0	2.00	4.0	1703.7	1707.8	2.03	87.26
1434.0	2.00	4.0	1703.7	1707.7	2.02	87.26
1440.0	2.00	4.0	1703.6	1707.7	2.02	87.26
1446.0	1.00	3.0	1702.9	1706.6	1.88	87.25
1452.0	1.00	2.0	1701.3	1704.9	1.80	87.25
1458.0	1.00	2.0	1699.7	1703.3	1.80	87.24
1464.0	1.00	2.0	1698.1	1701.7	1.80	87.23
1470.0	1.00	2.0	1696.5	1700.1	1.80	87.23
1476.0	1.00	2.0	1694.9	1698.5	1.79	87.22

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1693.3	1696.9	1.79	87.22
1488.0	1.00	2.0	1691.7	1695.3	1.79	87.21
1494.0	1.00	2.0	1690.2	1693.7	1.79	87.20
1500.0	1.00	2.0	1688.6	1692.2	1.79	87.20
1506.0	1.00	2.0	1687.0	1690.6	1.79	87.19
1512.0	1.00	2.0	1685.4	1689.0	1.79	87.19
1518.0	1.00	2.0	1683.9	1687.4	1.79	87.18
1524.0	0.00	1.0	1681.3	1684.9	1.78	87.17
1530.0	0.00	0.0	1677.7	1681.3	1.78	87.16
1536.0	0.00	0.0	1674.2	1677.7	1.78	87.14
1542.0	0.00	0.0	1670.6	1674.2	1.78	87.13
1548.0	0.00	0.0	1667.1	1670.6	1.77	87.12
1554.0	0.00	0.0	1663.5	1667.1	1.77	87.10

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS25PO .HYD
Outflow Hydrograph: b:SCS25OUT.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	207.00 cfs
Peak Outflow	=	97.08 cfs
Peak Elevation	=	88.59 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	138,470 cu-ft
Peak Storage From Storm	=	235,700 cu-ft
Total Storage in Pond	=	374,170 cu-ft

Warning: Inflow hydrograph truncated on left side.

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*                       *
* SCS INFLOW TO BMP 1   *
*      STONEHOUSE       *
*                       *
*                       *
*                       *
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Inflow Hydrograph: b:SCS100PO.HYD
Rating Table file: b:89046-1 .PND

----INITIAL CONDITIONS----
Elevation = 83.25 ft
Outflow = 0.00 cfs
Storage = 138,470 cu-ft

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
73.25	0.0	13	0.1	0.1
73.75	0.0	352	2.0	2.0
74.25	0.0	1,519	8.4	8.4
74.75	0.0	3,282	18.2	18.2
75.25	0.0	5,643	31.3	31.3
75.75	0.0	8,688	48.3	48.3
76.25	0.0	12,449	69.2	69.2
76.75	0.0	16,663	92.6	92.6
77.25	0.0	21,296	118.3	118.3
77.75	0.0	26,368	146.5	146.5
78.25	0.0	31,902	177.2	177.2
78.75	0.0	37,933	210.7	210.7
79.25	0.0	44,485	247.1	247.1
79.75	0.0	51,579	286.5	286.5
80.25	0.0	60,098	333.9	333.9
80.75	0.0	70,531	391.8	391.8
81.25	0.0	81,597	453.3	453.3
81.75	0.0	93,317	518.4	518.4
82.25	0.0	106,055	589.2	589.2
82.75	0.0	121,682	676.0	676.0
83.25	0.0	138,470	769.3	769.3
83.75	0.5	156,334	868.5	869.0
84.25	0.8	175,500	975.0	975.8
84.75	1.1	195,488	1086.0	1087.1
85.25	1.3	216,226	1201.3	1202.6
85.75	1.4	237,729	1320.7	1322.1
86.25	1.6	260,003	1444.5	1446.1
86.75	1.7	283,014	1572.3	1574.0
87.25	1.8	306,764	1704.2	1706.0
87.75	22.6	331,266	1840.4	1863.0
88.25	60.5	356,486	1980.5	2041.0

GIVEN POND DATA			INTERMEDIATE ROUTING COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
88.75	113.6	382,153	2123.1	2236.7
89.25	190.9	408,225	2267.9	2458.8
89.75	272.4	434,704	2415.0	2687.4

Time increment (t) = 6.0 min.

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

INFLOW HYDROGRAPH — ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
660.0	8.00	-----	769.3	769.3	0.00	83.25
666.0	9.00	17.0	786.1	786.3	0.09	83.34
672.0	9.00	18.0	803.8	804.1	0.17	83.42
678.0	10.00	19.0	822.2	822.8	0.27	83.52
684.0	12.00	22.0	843.5	844.2	0.39	83.63
690.0	14.00	26.0	868.5	869.5	0.50	83.75
696.0	16.00	30.0	897.3	898.5	0.58	83.89
702.0	34.00	50.0	945.9	947.3	0.72	84.12
708.0	51.00	85.0	1029.0	1030.9	0.95	84.50
714.0	69.00	120.0	1146.6	1149.0	1.21	85.02
720.0	134.00	203.0	1346.7	1349.6	1.44	85.86
726.0	245.00	379.0	1716.9	1725.7	4.40	87.31
732.0	265.00	510.0	2005.0	2226.9	110.94	88.72
738.0	160.00	425.0	2068.2	2430.0	180.87	89.19
744.0	83.00	243.0	2032.1	2311.2	139.55	88.92
750.0	55.00	138.0	1979.0	2170.1	95.55	88.58
756.0	42.00	97.0	1936.0	2076.0	70.02	88.34
762.0	34.00	76.0	1903.3	2012.0	54.33	88.17
768.0	29.00	63.0	1877.1	1966.3	44.61	88.04
774.0	26.00	55.0	1857.5	1932.1	37.32	87.94
780.0	23.00	49.0	1842.8	1906.5	31.86	87.87
786.0	22.00	45.0	1832.0	1887.8	27.88	87.82
792.0	20.00	42.0	1824.1	1874.0	24.95	87.78
798.0	19.00	39.0	1817.8	1863.1	22.63	87.75
804.0	18.00	37.0	1811.8	1854.8	21.52	87.72
810.0	17.00	35.0	1805.9	1846.8	20.46	87.70
816.0	16.00	33.0	1800.1	1838.9	19.41	87.67
822.0	16.00	32.0	1795.1	1832.1	18.50	87.65
828.0	15.00	31.0	1790.6	1826.1	17.71	87.63
834.0	14.00	29.0	1785.9	1819.6	16.86	87.61
840.0	13.00	27.0	1781.0	1812.9	15.97	87.59
846.0	13.00	26.0	1776.6	1807.0	15.18	87.57
852.0	12.00	25.0	1772.7	1801.6	14.47	87.55
858.0	12.00	24.0	1769.1	1796.7	13.82	87.54
864.0	12.00	24.0	1766.4	1793.1	13.33	87.53
870.0	11.00	23.0	1763.7	1789.4	12.85	87.52
876.0	11.00	22.0	1761.0	1785.7	12.36	87.50
882.0	11.00	22.0	1759.0	1783.0	12.00	87.50
888.0	10.00	21.0	1756.8	1780.0	11.60	87.49
894.0	10.00	20.0	1754.4	1776.8	11.18	87.48
900.0	10.00	20.0	1752.7	1774.4	10.86	87.47
906.0	10.00	20.0	1751.4	1772.7	10.64	87.46
912.0	10.00	20.0	1750.5	1771.4	10.47	87.46
918.0	9.00	19.0	1749.1	1769.5	10.21	87.45
924.0	9.00	18.0	1747.3	1767.1	9.89	87.44

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
930.0	9.00	18.0	1746.0	1765.3	9.65	87.44
936.0	9.00	18.0	1745.0	1764.0	9.48	87.43
942.0	9.00	18.0	1744.3	1763.0	9.35	87.43
948.0	8.00	17.0	1743.1	1761.3	9.13	87.43
954.0	8.00	16.0	1741.4	1759.1	8.83	87.42
960.0	8.00	16.0	1740.2	1757.4	8.61	87.41
966.0	8.00	16.0	1739.3	1756.2	8.45	87.41
972.0	8.00	16.0	1738.6	1755.3	8.33	87.41
978.0	7.00	15.0	1737.4	1753.6	8.11	87.40
984.0	7.00	14.0	1735.8	1751.4	7.82	87.39
990.0	7.00	14.0	1734.6	1749.8	7.60	87.39
996.0	7.00	14.0	1733.7	1748.6	7.44	87.39
1002.0	7.00	14.0	1733.1	1747.7	7.32	87.38
1008.0	7.00	14.0	1732.6	1747.1	7.24	87.38
1014.0	7.00	14.0	1732.2	1746.6	7.17	87.38
1020.0	7.00	14.0	1732.0	1746.2	7.13	87.38
1026.0	7.00	14.0	1731.8	1746.0	7.09	87.38
1032.0	7.00	14.0	1731.7	1745.8	7.07	87.38
1038.0	6.00	13.0	1730.8	1744.7	6.92	87.37
1044.0	6.00	12.0	1729.5	1742.8	6.67	87.37
1050.0	6.00	12.0	1728.5	1741.5	6.50	87.36
1056.0	6.00	12.0	1727.8	1740.5	6.36	87.36
1062.0	6.00	12.0	1727.2	1739.8	6.27	87.36
1068.0	6.00	12.0	1726.8	1739.2	6.20	87.36
1074.0	6.00	12.0	1726.5	1738.8	6.14	87.35
1080.0	6.00	12.0	1726.3	1738.5	6.11	87.35
1086.0	6.00	12.0	1726.2	1738.3	6.08	87.35
1092.0	6.00	12.0	1726.0	1738.2	6.06	87.35
1098.0	6.00	12.0	1726.0	1738.0	6.04	87.35
1104.0	6.00	12.0	1725.9	1738.0	6.03	87.35
1110.0	6.00	12.0	1725.9	1737.9	6.02	87.35
1116.0	5.00	11.0	1725.1	1736.9	5.88	87.35
1122.0	5.00	10.0	1723.8	1735.1	5.65	87.34
1128.0	5.00	10.0	1722.8	1733.8	5.48	87.34
1134.0	5.00	10.0	1722.1	1732.8	5.35	87.34
1140.0	5.00	10.0	1721.6	1732.1	5.26	87.33
1146.0	5.00	10.0	1721.2	1731.6	5.19	87.33
1152.0	5.00	10.0	1721.0	1731.2	5.14	87.33
1158.0	5.00	10.0	1720.8	1731.0	5.10	87.33
1164.0	5.00	10.0	1720.6	1730.8	5.08	87.33
1170.0	4.00	9.0	1719.8	1729.6	4.92	87.33
1176.0	4.00	8.0	1718.4	1727.8	4.68	87.32
1182.0	4.00	8.0	1717.4	1726.4	4.50	87.31
1188.0	4.00	8.0	1716.7	1725.4	4.37	87.31
1194.0	4.00	8.0	1716.1	1724.7	4.27	87.31
1200.0	4.00	8.0	1715.7	1724.1	4.20	87.31

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1206.0	4.00	8.0	1715.4	1723.7	4.15	87.31
1212.0	4.00	8.0	1715.2	1723.4	4.11	87.31
1218.0	4.00	8.0	1715.1	1723.2	4.08	87.30
1224.0	4.00	8.0	1715.0	1723.1	4.06	87.30
1230.0	4.00	8.0	1714.9	1723.0	4.04	87.30
1236.0	4.00	8.0	1714.8	1722.9	4.03	87.30
1242.0	4.00	8.0	1714.8	1722.8	4.02	87.30
1248.0	4.00	8.0	1714.7	1722.8	4.02	87.30
1254.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1260.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1266.0	4.00	8.0	1714.7	1722.7	4.01	87.30
1272.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1278.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1284.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1290.0	4.00	8.0	1714.7	1722.7	4.00	87.30
1296.0	4.00	8.0	1714.6	1722.7	4.00	87.30
1302.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1308.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1314.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1320.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1326.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1332.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1338.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1344.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1350.0	4.00	8.0	1714.6	1722.6	4.00	87.30
1356.0	3.00	7.0	1713.9	1721.6	3.87	87.30
1362.0	3.00	6.0	1712.6	1719.9	3.64	87.29
1368.0	3.00	6.0	1711.7	1718.6	3.47	87.29
1374.0	3.00	6.0	1711.0	1717.7	3.34	87.29
1380.0	3.00	6.0	1710.5	1717.0	3.25	87.28
1386.0	3.00	6.0	1710.1	1716.5	3.19	87.28
1392.0	3.00	6.0	1709.9	1716.1	3.14	87.28
1398.0	3.00	6.0	1709.7	1715.9	3.10	87.28
1404.0	3.00	6.0	1709.5	1715.7	3.07	87.28
1410.0	2.00	5.0	1708.7	1714.5	2.92	87.28
1416.0	2.00	4.0	1707.3	1712.7	2.68	87.27
1422.0	2.00	4.0	1706.3	1711.3	2.50	87.27
1428.0	2.00	4.0	1705.6	1710.3	2.37	87.26
1434.0	2.00	4.0	1705.0	1709.6	2.27	87.26
1440.0	2.00	4.0	1704.6	1709.0	2.20	87.26
1446.0	2.00	4.0	1704.4	1708.6	2.15	87.26
1452.0	2.00	4.0	1704.1	1708.4	2.11	87.26
1458.0	2.00	4.0	1704.0	1708.1	2.08	87.26
1464.0	2.00	4.0	1703.9	1708.0	2.06	87.26
1470.0	2.00	4.0	1703.8	1707.9	2.04	87.26
1476.0	1.00	3.0	1703.0	1706.8	1.90	87.25

Pond File: b:89046-1 .PND
Inflow Hydrograph: b:SCS100PD.HYD
Outflow Hydrograph: b:SCS1000U.HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1482.0	1.00	2.0	1701.4	1705.0	1.80	87.25
1488.0	1.00	2.0	1699.8	1703.4	1.80	87.24
1494.0	1.00	2.0	1698.2	1701.8	1.80	87.23
1500.0	1.00	2.0	1696.6	1700.2	1.80	87.23
1506.0	1.00	2.0	1695.0	1698.6	1.79	87.22
1512.0	1.00	2.0	1693.4	1697.0	1.79	87.22
1518.0	1.00	2.0	1691.9	1695.4	1.79	87.21
1524.0	1.00	2.0	1690.3	1693.9	1.79	87.20
1530.0	0.00	1.0	1687.7	1691.3	1.79	87.19
1536.0	0.00	0.0	1684.1	1687.7	1.79	87.18
1542.0	0.00	0.0	1680.6	1684.1	1.78	87.17
1548.0	0.00	0.0	1677.0	1680.6	1.78	87.15
1554.0	0.00	0.0	1673.4	1677.0	1.78	87.14

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: b:89046-1 .FND
Inflow Hydrograph: b:SCS100PO.HYD
Outflow Hydrograph: b:SCS100OU.HYD

Starting Pond W.S. Elevation = 83.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	265.00 cfs
Peak Outflow	=	180.87 cfs
Peak Elevation	=	89.19 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	138,470 cu-ft
Peak Storage From Storm	=	266,371 cu-ft
Total Storage in Pond	=	404,841 cu-ft

Warning: Inflow hydrograph truncated on left side.

ORIFICE

ORIFICE = 6.00 INCHES

ELEV. (FT.)	FLOW (CFS)
83.25	0.00
83.50	.19
83.75	.47
84.00	.67
84.25	.82
84.50	.95
84.75	1.06
85.00	1.16
85.25	1.25
85.50	1.34
85.75	1.42
86.00	1.49
86.25	1.57
86.50	1.64
86.75	1.70
87.00	1.77
87.25	1.83

Avg 1.14 CFS

FORMULA USED Q = C * A * SQR 2gh HEAD > Dia

Q = 3 * D * HEAD^1.5 HEAD < Dia

Vol @ 87.25 = 306,764
Vol @ 83.25 = 138,470
168,294 cu.ft.

1.14 CFS X 60 SEC/MIN X 60 MIN/HR = 4104 CF/HR

168,294 CF ÷ 4104 CF/HR = 41.0 hrs.

PAGE
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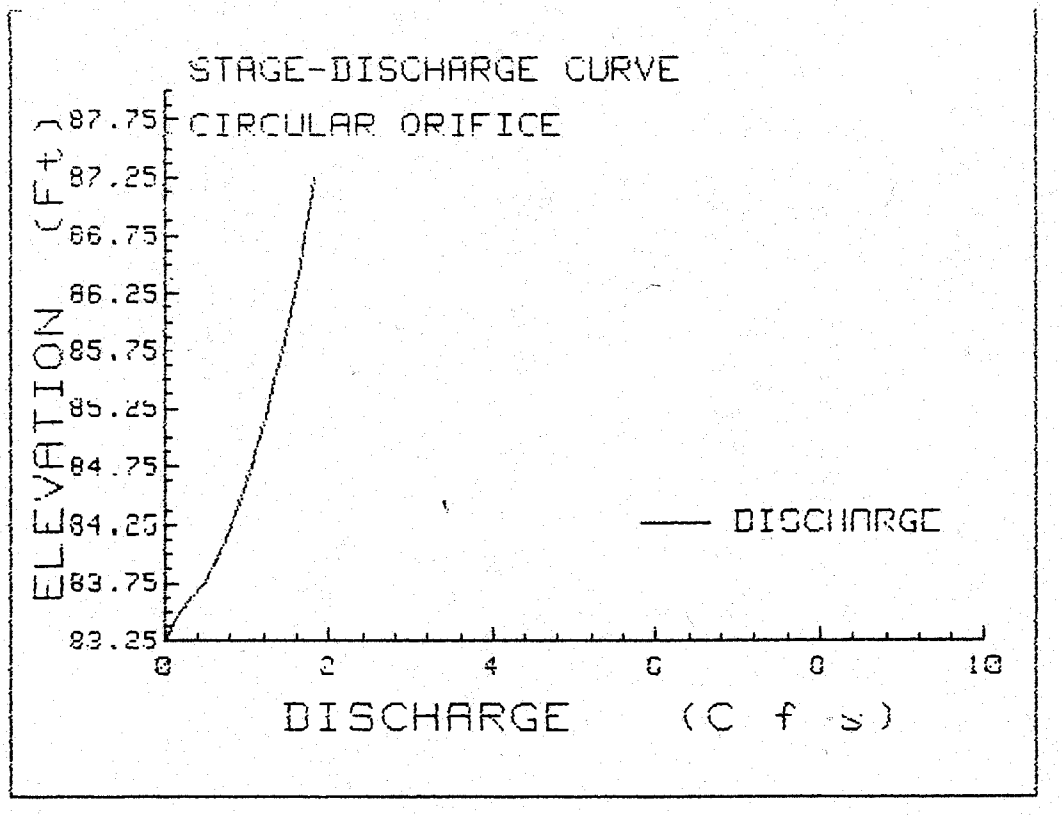
WILLIAMSBURG, VIRGINIA
1/5/95



STORM - SEWER DESIGN COMPUTATIONS

L & D 229

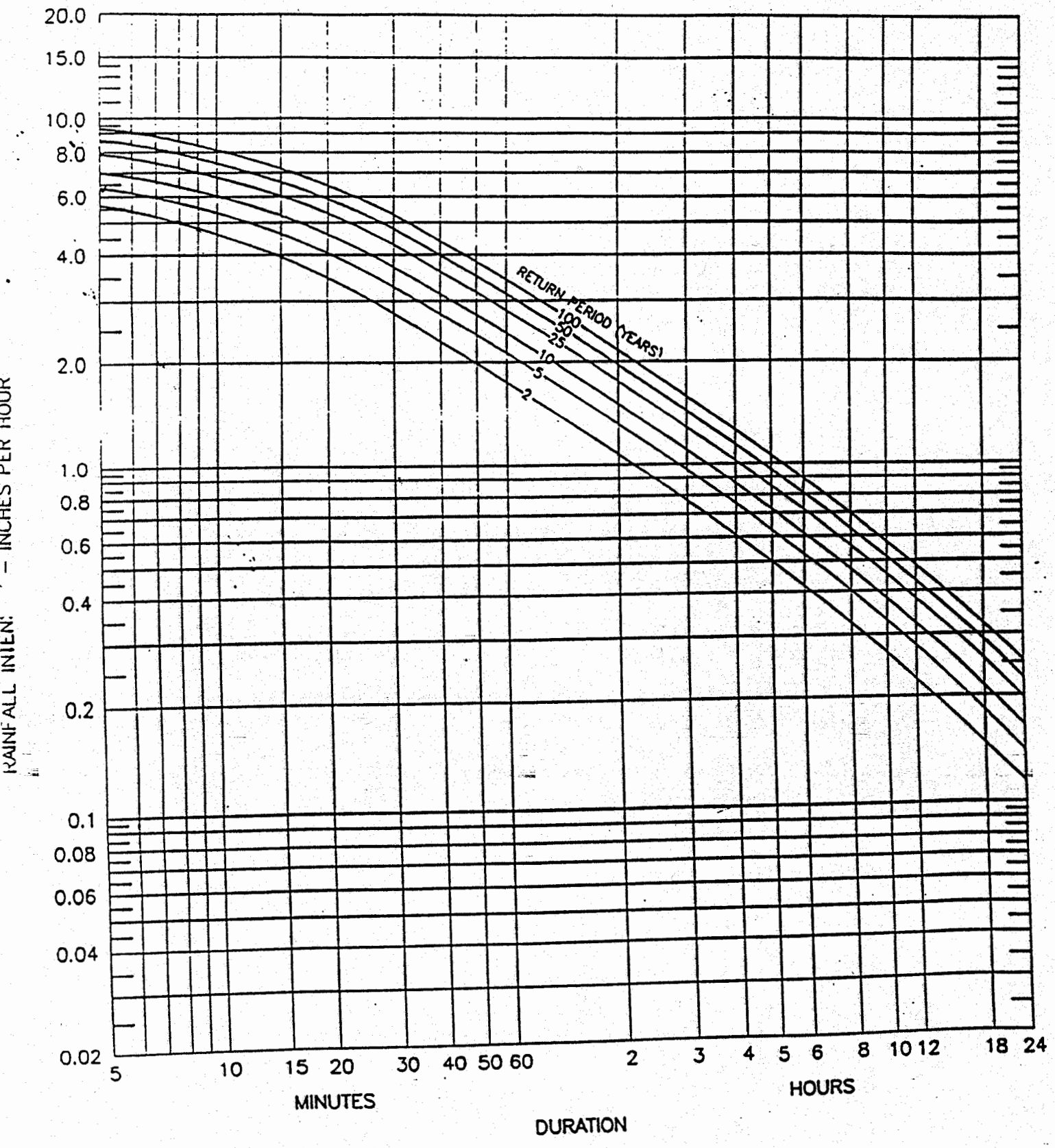
ROUTE 199 RELOCATED PROJ. STONEHOUSE PARKWAY
COUNTY JAMES CITY DISTRICT
DESCRIPTION STONEHOUSE PARKWAY 10+00 to 26+50

SHEET 1 OF 1

FROM POINT	TO POINT	AREA DRAIN. "A" ACRES	RUN-OFF COEF. C	CA INCRE-MENT	CA ACCUM-ULATED	INLET TIME MIN-UTES	RAIN FALL IN./HR.	RUNOFF Q C.F.S.	INVERT ELEVATIONS UPPER END	INVERT ELEVATIONS LOWER END	LENGTH FT.	SLOPE FT./FT.	DIA. IN.	CAPA-CITY C.F.S.	VEL. F.P.S.	FLOW TIME SEC.	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	2	2.83	0.72	—	2.04	5	7.0	14.3	113.71	113.56	18'	0.0084	24"	20.73	7.1	2.5	
2	3	0.07	0.9	0.06	2.10	5.04	7.0	14.7	113.46	113.12	44'	0.0078	24"	19.98	7.0	6.3	
3	4	0.16	0.9	0.14	2.24	5.14	7.0	15.7	113.02	112.90	15'	0.0078	24"	19.98	7.0	2.1	
4	5	0.09	0.4	0.04	2.28	5.17	7.0	16.0	112.80	112.54	33'	0.0078	24"	19.98	7.1	4.6	
5	7	0.05	0.9	0.05	2.33	5.25	6.9	16.1	112.44	112.15	37'	0.0078	24"	19.98	7.1	5.2	
6	7	0.05	0.4	—	0.02	5	7.0	0.14	113.41	112.90	40'	0.0128	15"	7.31	2.3	17.4	
7	8	0.10	0.9	0.09	2.44	5.34	6.9	16.8	112.05	111.74	40'	0.0078	24"	19.98	7.1	5.5	
9	10	6.70	0.72	—	4.82	10	6.0	28.94	109.50	109.33	28'	0.006	30"	31.77	5.2	5.4	
E10	11 E-2	0.04	0.6	0.024	4.84	10.1	6.0	29.04	109.23	109.04	32'	0.006	30"	31.77	5.2	6.1	
11 E2	12 E-3	0.29	0.9	0.26	5.10	10.2	6.0	30.60	108.94	108.63	18'	0.0174	30"	54.11	7.6	2.4	
12 E3	13 E-4	0.19	0.4	0.08	5.18	10.2	6.0	31.08	108.53	107.80	42'	0.0174	30"	54.11	7.7	5.4	
13 E4	14 E-6	0.33	0.9	0.30	5.48	10.3	5.9	32.36	107.70	107.00	34'	0.0206	30"	58.87	8.2	4.1	
15	16	1.65	0.7		1.16	9	4.7	5.45	100.89	100.64	50	0.005	18"	7.5	4.7	10.6	
17	16	1.40	0.7		0.98	9	4.7	4.80	100.89	100.64	50	0.005	18"	7.5	4.7	10.6	
16	18	0.39	0.9	0.35	2.48	9	4.7	11.66	100.14	99.40	37	0.02	18"	14.9	9.4	4.0	
18	19	0.13	0.6	0.08	2.56	9.2	4.7	12.03	99.30	98.98	16'	0.02	18"	14.9	9.4	1.7	
19	20	0.17	0.6	0.10	2.66	9.3	4.9	13.03	98.88	97.77	37'	0.03	18"	18.0	10.7	3.5	
20	22	0.34	0.9	0.35	3.01	9.3	4.9	14.75	95.00	82.00	255	0.0689	18"	27.5	18.4	13.9	

NORFOLK, VA.

Fig. 1.5.1.7



Rev. 6/92

PROJECT 89046
HEC12 Version: V2.91 Run Date: 04-14-1994

==========

INLET NUMBER 2 DI-3B LENGTH 4.0 STATION 11+00

DRAINAGE AREA = 0.070 ACRES C VALUE = .900 CA = 0.063
SUM CA= 0.063 INT= 3.50 CFS= 0.221 CO= 0.000 GUTTER FLOW= 0.221

GUTTER SLOPE = 0.0208 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.43	2.0	1.40	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 3.6 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.22 CFS CARRYOVER= 0.00

==========

INLET NUMBER 3 DI-3B LENGTH 6.0 STATION 11+00

DRAINAGE AREA = 0.160 ACRES C VALUE = .900 CA = 0.144
SUM CA= 0.144 INT= 3.50 CFS= 0.504 CO= 0.000 GUTTER FLOW= 0.504

GUTTER SLOPE = 0.0208 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.95	2.0	1.03	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 5.1 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.50 CFS CARRYOVER= 0.00

==========

INLET NUMBER 4 DI-3A LENGTH 2.5 STATION 11+00

DRAINAGE AREA = 0.080 ACRES C VALUE = .400 CA = 0.032
DRAINAGE AREA = 0.010 ACRES C VALUE = .400 CA = 0.004
SUM CA= 0.036 INT= 3.50 CFS= 0.126 CO= 0.000 GUTTER FLOW= 0.126

GUTTER SLOPE = 0.0010 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD AT A SLOPE OF .001 (ft./ft.) AND 0.11 (cfs) IS 1.96 (ft.)

XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
P EFFEC. LENGTH (ft) = 6.10 H (ft) = 0.458
DEPTH OF WATER (ft) = 0.04 SPREAD (ft) = 2.07

```
==========================================================================
INLET NUMBER 5 DI-3A          LENGTH   2.5          STATION  11+00

DRAINAGE AREA =  0.030 ACRES        C VALUE = .900        CA =  0.027
DRAINAGE AREA =  0.020 ACRES        C VALUE = .900        CA =  0.018
SUM CA=   0.045 INT=  3.50  CFS=   0.157  CO=  0.000 GUTTER FLOW=   0.157

GUTTER SLOPE = 0.0010 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT


SPREAD AT A SLOPE OF .001 (ft./ft.) AND   0.09 (cfs) IS  1.84 (ft.)

       XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
    P EFFEC. LENGTH (ft) =  6.10                  H (ft) = 0.458
    DEPTH OF WATER (ft) =   0.05           SPREAD (ft)  =  2.41



==========================================================================
INLET NUMBER 6 DI-3A          LENGTH   2.5          STATION

DRAINAGE AREA =  0.045 ACRES        C VALUE = .400        CA =  0.018
DRAINAGE AREA =  0.005 ACRES        C VALUE = .800        CA =  0.004
SUM CA=   0.022 INT=  3.50  CFS=   0.077  CO=  0.000 GUTTER FLOW=   0.077

GUTTER SLOPE = 0.0010 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT


SPREAD AT A SLOPE OF .001 (ft./ft.) AND   0.06 (cfs) IS  1.58 (ft.)

       XXXXXXXXXX CURB INLET IN A SUMP XXXXXXXXXX
    P EFFEC. LENGTH (ft) =  6.10                  H (ft) = 0.458
    DEPTH OF WATER (ft) =   0.03           SPREAD (ft)  =  1.49



==========================================================================
INLET NUMBER 7 DI-3B          LENGTH   4.0          STATION

DRAINAGE AREA =  0.100 ACRES        C VALUE = .900        CA =  0.090
SUM CA=   0.090 INT=  3.50  CFS=   0.315  CO=  0.000 GUTTER FLOW=   0.315

GUTTER SLOPE = 0.0143 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo      a      S'W     SE
  1.75     2.0     1.14   0.0833      4.0      1.00    3.5    0.146  0.167

       XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
    REQUIRED LENGTH (ft) =  3.8                EFFICIENCY= 1.00
    CFS INTERCEPTED=  0.31                 CFS CARRYOVER=  0.00
```

PROJECT 89046
HEC12 Version: V2.91

Run Date: 04-15-1994

==========

INLET NUMBER 9 DI-3A LENGTH 2.5 STATION 17+50

DRAINAGE AREA = 0.040 ACRES C VALUE = .600 CA = 0.024
SUM CA= 0.024 INT= 3.50 CFS= 0.084 CO= 0.000 GUTTER FLOW= 0.084

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
0.93	2.0	2.15	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 2.7 EFFICIENCY= 0.99
CFS INTERCEPTED= 0.08 CFS CARRYOVER= 0.00

==========

INLET NUMBER 10 DI-3B LENGTH 8.0 STATION 17+50

DRAINAGE AREA = 0.290 ACRES C VALUE = .900 CA = 0.261
SUM CA= 0.261 INT= 3.50 CFS= 0.913 CO= 0.000 GUTTER FLOW= 0.913

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
3.05	2.0	0.66	0.0833	4.0	0.99	3.5	0.146	0.165

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 7.4 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.91 CFS CARRYOVER= 0.00

==========

INLET NUMBER 11 DI-3B LENGTH 6.0 STATION 17+40

DRAINAGE AREA = 0.190 ACRES C VALUE = .400 CA = 0.076
SUM CA= 0.076 INT= 3.50 CFS= 0.266 CO= 0.000 GUTTER FLOW= 0.266

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0208 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
1.43	2.0	1.40	0.0833	4.0	1.00	3.5	0.146	0.167

XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
REQUIRED LENGTH (ft) = 4.4 EFFICIENCY= 1.00
CFS INTERCEPTED= 0.27 CFS CARRYOVER= 0.00

```
==============================================================================
INLET NUMBER 12 DI-3B        LENGTH   8.0        STATION  17+40

DRAINAGE AREA =  0.330 ACRES        C VALUE = .900        CA =  0.297
SUM CA=   0.297 INT=  3.50  CFS=   1.039  CO=  0.000 GUTTER FLOW=   1.039

GUTTER SLOPE = 0.0300 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo       a      S'W      SE
  3.46     2.0     0.58   0.0833      4.0       0.97    3.5    0.146   0.163

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
   REQUIRED LENGTH (ft) =  7.9                EFFICIENCY= 1.00
   CFS INTERCEPTED=  1.04                 CFS CARRYOVER=  0.00
```

```
==========================================================================
INLET NUMBER 15              LENGTH  16.0        STATION  21+50

DRAINAGE AREA =  1.650 ACRES        C VALUE = .700        CA =  1.155
SUM CA=   1.155 INT=  3.50  CFS=   4.043  CO=  0.000 GUTTER FLOW=   4.043

GUTTER SLOPE = 0.0300 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo      a      S'W     SE
  8.25     2.0     0.24   0.0833      4.0       0.67    3.5    0.146  0.118

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
   REQUIRED LENGTH (ft) = 16.9                EFFICIENCY= 1.00
   CFS INTERCEPTED=  4.02                 CFS CARRYOVER=  0.02


==========================================================================
INLET NUMBER 17              LENGTH  12.0        STATION  22+50

DRAINAGE AREA =  1.400 ACRES        C VALUE = .700        CA =  0.980
SUM CA=   0.980 INT=  3.50  CFS=   3.430  CO=  0.000 GUTTER FLOW=   3.430

GUTTER SLOPE = 0.0100 FT/FT        PAVEMENT CROSS SLOPE =  0.0208 FT/FT

SPREAD      W      W/T      SW        SW/SX      Eo      a      S'W     SE
  9.89     2.0     0.20   0.0833      4.0       0.58    3.5    0.146  0.105

      XXXXXXXXXX CURB INLET ON A CONTINUOUS GRADE XXXXXXXXXX
   REQUIRED LENGTH (ft) = 12.1                EFFICIENCY= 1.00
   CFS INTERCEPTED=  3.43                 CFS CARRYOVER=  0.00
```

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project Commerce Parkway at Stonehouse

Basin # BMP # 1 Location NE corner Rt 30 & Rt 746 (Old Stage Rd)

Total area draining to basin: 32.6 acres.

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 32.6 acres = 2184.2 cu. yds.

2. Available basin volume = 4380 cu. yds. at elevation 83.25. (From storage - elevation curve)

3. Excavate 0 cu. yds. to obtain required volume*.

   * Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

   33 cu. yds. x 32.6 acres = 1076 cu. yds.

5. Elevation corresponding to cleanout level = 77 ±.

   (From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 6.25 ft. (Min. = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 32.6 acres = 2184.2 cu. yds.

8. Total available basin volume at crest of riser* = 9630 cu. yds. at elevation 87.25. (From Storage - Elevation Curve)

* Minimum = 134 cu. yds./acre of total drainage area.

9. Diameter of dewatering orifice = 6 in.

10. Diameter of flexible tubing = N/A in. (diameter of dewatering orifice plus 2 inches). USING RIGID PIPING FOR PERMANENT TRASH PROTECTION

Preliminary Design Elevations

11. Crest of Riser = 87.25

Top of Dam = 90.00

Design High Water = 86.70

Upstream Toe of Dam = 73

Basin Shape

12. Length of Flow / Effective Width $\frac{L}{We} = \frac{250}{70}$

If > 2, baffles are not required 3.6 NO BAFFELS

If < 2, baffles are required _____

Runoff

13. Q_2 = 72.74 cfs (From Chapter 5)

14. Q_{25} = 87.41 cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 =$ 72.74 cfs. (riser and barrel)

Without emergency spillway, required spillway capacity $Q_p = Q_{25} =$ 87.41 cfs. (riser and barrel)

16. With emergency spillway:

Assumed available head (h) = 1.5 ft. (Using Q_2)

h = Crest of Emergency Spillway Elevation - Crest of Riser Elevation

Without emergency spillway:

Assumed available head (h) = N/A ft. (Using Q_{25})

h = Design High Water Elevation - Crest of Riser Elevation

17. Riser diameter (D_r) = 72 in. Actual head (h) = 1.2 2 year / 1.35 ft. 25 year

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 70 ft.

Head (H) on barrel through embankment = * ft.

(From Plate 3.14-7).

19. Barrel diameter = 36 in.

(From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).

20. Trash rack and anti-vortex device

Diameter = 107 inches.

Height = 24 inches.

(From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity Q_e = $Q_{\cancel{25}\,100}$ - Q_p = 28.68 - 22.50 cfs. = 0.18' = Q_e

22. Bottom width (b) = 10 ft.; the slope of the exit channel (s) = 0.2 ± ft./foot; and the minimum length of the exit channel (x) = 50 ft.
(From Table 3.14-C).

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = 8.25 ft.

Slope of upstream face of embankment (Z) = 3 :1.

Slope of principal spillway barrel (S_b) = 1.0 %

Length of barrel in saturated zone (L_s) = 60 ft.

24. Number of collars required = 3 dimensions = 5'-9"x5'-9"

(from Plate 3.14-12).

Final Design Elevations

25. Top of Dam = 90

Design High Water = _____ 100 YEAR

Emergency Spillway Crest = 88.7

Principal Spillway Crest = 87.25

Dewatering Orifice Invert = 83.25

Cleanout Elevation = 77 ±

Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (if excavation was performed) = 73' ±

Langley and McDonald
A PROFESSIONAL CORPORATION
ENGINEERS · PLANNERS · SURVEYORS
VIRGINIA BEACH - WILLIAMSBURG, VIRGINIA

Subject _____

Computed By DBL Checked By _____

Project No. _____
Client STONEHOUSE
Date 6-1-94 Sheet No. _____

SEDIMENT TRAP @ STA 31+50

STRATEGY — DIVERT UPSTREAM, UNCLEARED LAND ~~WITH~~ TO LEVEL SPREADER & NATURAL DRAINAGE → RESULTING AREA SHOULD BE LESS THAN 3.0 ACRES

AREA THROUGH TRAP = 820' x 150' = 123,000 SF
= 2.8 AC

VOLUME STORAGE REQ'D = 2.8 AC x 134 CY/AC
= 375.2 CY = 10,130 CF

WET VOL = 1/2 TOTAL = 1/2 · 10,130 CF
= 5065 CF

DESIGN TRAP TO FIT IN OUTFALL CHANNEL

WET VOL WILL BE EXCAVATED BELOW FUTURE INV., WILL HAVE FLAT BOTTOM, 1:1 SIDES

IF 4' DEEP
& BOTTOM
AREA = 0 SF

TOP = 8' WIDE

AREA TOP REQUIRED = $A_2 = \frac{Vol}{0.85 \times Depth} = \frac{5065}{0.85 \times 4'} = 1490 SF$

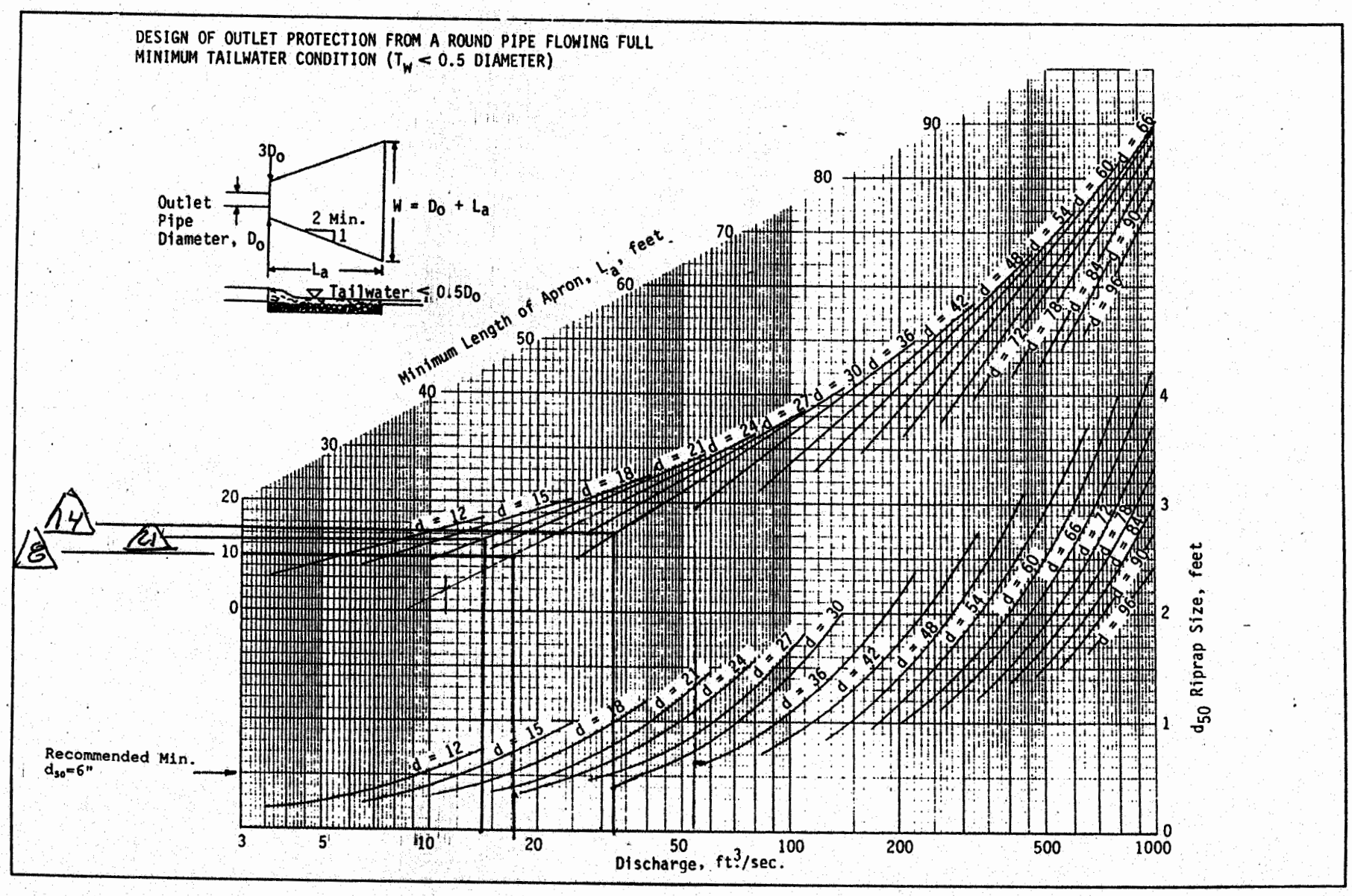
LENGTH REQ'D = $\frac{1490 SF}{8'} = 186'$
USE 190'

DRY VOLUME REQ'D = 5065 CF
USE 2:1 SIDES FOR FUTURE DITCH

VOLUME PROVIDED = $\frac{(190 \times 8) + (190 + 4H_0)(8 + 4H_0)}{2} \times H_0$

IF $H_0 = 2'$ THEN VOL = 4688 CF < 5065
USE $H_0 = 2.5$, VOL = 6400 CF OK
H = 3.5, W = 3.0, L = 2.8 x 6 = 17 LF

WE'LL ALSO HAVE TO ADD UNCLEARED AREA FROM DRAINING INTO ST



Source: USDA-SCS

Plate 3.18-3

LANGLEY and McDONALD, P.C.
201 Packets Court
Williamsburg, Virginia 23185

PAVEMENT DESIGN
VHRC 73-R21

PROJECT: STONEHOUSE
LOCATION: James City Co., Virginia
STREET: STONEHOUSE PARKWAY
FROM STA. 10+50 TO STA. 18+50
DATE: 20-Sep-94

TRAFFIC ANALYSIS		SUBGRADE ANALYSIS	
1. Vehicles Per Day =	986	1. CBR Values =	10.00 (assumed)
2. % Heavy Traffic =	35 %		0.00 0.00 0.00
3. Equiv. Present ADT =	6902	2. Enter No. of Tests =	1
4. Design Period	10 Yrs.	3. Average CBR =	10.00
5. % Growth =	5 %	4. Design GBR =	6.67
6. Growth Factor =	1.05	5. Soil Resiliency Factor =	3.00
7. V.P.D. Projection =	11,243 ADT	6. Soil Support Value =	20.00

PAVEMENT DESIGN

1. Thickness Index Required = 20.5 inches

2. Design

ALT. 'A'

Material	Factor	Thickness	Index	% Asphalt
S-5	1.67	0.0	0.0	ERR
Aggregate	1.00	0.0	0.0	
Sel. Material	0.60	0.0	0.0	
TOTAL		0.0	0.0	ERR

ALT. 'B'

Material	Factor	Thickness	Index	% Asphalt
S-5	2.25	2.0	4.5	0.21
B-3	2.25	4.5	10.1	0.46
Aggregate	0.60	12.0	7.2	
Sel. Material	0.40	0.0	0.0	
TOTAL		18.5	21.8	0.67

FILE: STONE2.MRG
LANGLEY and McDONALD, P.C.
201 Packets Court
Williamsburg, Virginia 23185

PAVEMENT DESIGN
VHRC 73-R21

PROJECT: STONEHOUSE
LOCATION: James City Co., Virginia
STREET: STONEHOUSE PARKWAY
FROM STA. 18+50 TO STA. 26+50
DATE: 20-Sep-94

TRAFFIC ANALYSIS		SUBGRADE ANALYSIS	
1. Vehicles Per Day =	525	1. CBR Values =	10.00 (assumed)
2. % Heavy Traffic =	35 %		0.00 0.00 0.00
3. Equiv. Present ADT =	3675	2. Enter No. of Tests =	1
4. Design Period	10 Yrs.	3. Average CBR =	10.00
5. % Growth =	5 %	4. Design CBR =	6.67
6. Growth Factor =	1.05	5. Soil Resiliency Factor =	3.00
7. V.P.D. Projection =	5,986 ADT	6. Soil Support Value =	20.00

PAVEMENT DESIGN

1. Thickness Index Required = 18.5 inches

2. Design

ALT. 'A'

Material	Factor	Thickness	Index	% Asphalt
S-5	1.67	0.0	0.0	ERR
Aggregate	1.00	0.0	0.0	
Sel. Material	0.60	0.0	0.0	
TOTAL		0.0	0.0	ERR

ALT. 'B'

Material	Factor	Thickness	Index	% Asphalt
S-5	2.25	2.0	4.5	0.23
B-3	2.25	4.5	10.1	0.52
Aggregate	0.60	8.0	4.8	
Sel. Material	0.40	0.0	0.0	
TOTAL		14.5	19.4	0.75

~~August 20, 2003~~ - printed date

Mr. Leo Rogers
Deputy County Attorney
James City County
P.O. Box 8784
Williamsburg, VA 23187

RE: Stonehouse Commerce Park BMPs

Dear Mr. Rogers:

There are two Best Management Practice (BMP) facilities currently in place in the Stonehouse Commerce Park. One facility, BMP No. 1, is located just to the west of the County's shell building and the other, BMP No. 2, is located northwest (behind) the Solarex facility.

These BMPs were designed to accept drainage from multiple sites within the Commerce Park. BMP No. 1 receives drainage from and is sized to meet the County's stormwater management requirements for the Barre site. Similarly, BMP No. 2 meets the County requirements for the Avid Medical site. The only improvements these sites will need to make to meet the County's stormwater management requirements will be to install an adequate onsite drainage system with a possible offsite extension to convey their runoff to the existing BMP facilities. Construction of offsite BMP facilities will not be necessary.

Sincerely,

Darryl E. Cook, P.E.
Environmental Director

3-19-07

(R-1)(01-0-0048-)

Scott Thomas

From: Steven T. Yavorsky
Sent: Wednesday, March 14, 2007 10:32 AM
To: John Black; Jason Purse; Bob Smith; Scott Thomas; Doug Murrow; 'shudik@tamconsultants.com'
Cc: Keith Taylor; Timothy Mills
Subject: Nicewood Expansion

Nicewood Enterprises, a manufacturer of displays, fixtures, and millwork, has plans for a 30K-35K sf expansion of their 40,000 sf facility in Stonehouse Commerce Center, 9001 Westmont Drive. It will be both an expansion of their manufacturing and warehouse operations.
Their design team, which includes AES and TAM Consultants, has requested a pre-application meeting before they submit their site plan. In a moment, I will send a meeting notice for Monday 19 March at 10:30 am.
I will be in and out of the office for the remainder of this week, but if you need more information on this project, I will make sure to address it as soon as I can. Also, if you are unable to attend, please send a representative in your place.
Thanks,
~sy

Steven T. Yavorsky
Assistant Director
James City County Economic Development
(757) 253-6645
www.jccecondev.com

BLDG A
10:30 AM

EXPEDITED
65%

SITE AREA = 4.6 AC.

• MAX 50% IMP IW DA.

This parcel is the Barre parcel SEC B, LOT A
Barre

Discussed
- % IMPERV 65%
- Master plan BMP
- Adequacy of exist drainage system
- Pretreatment for improved areas
- GRASSY PAVERS WOULD NOT COUNT AS IMPERV. GRAVEL WOULD.

40,000
35641
75,641 ~ 2 acre / 4.6

Good working order + Design Level of Service

See SP-7-98 OLD BARRE PLAN

EARLY APRIL SUBMISSION
? EXPEDITED ?

Larry S. Barry, P.E., President
Norman H. Mason, L.S., Vice Pres.
Vaughn B. Rinner, C.L.A.
Kenneth A. Dierks
Robert P. Kerr, R.E.P., P.W.S.

LANDMARK DESIGN GROUP

Clayton E. Massey, P.E.
Charles R. Orsborne, L.S.
Stephen A. Romeo, L.S.
Mark W. Strickland, P.E.
A. Gary Webb, P.E.

February 5, 2001

Mr. Scott Thomas, P.E.
Environmental Engineer
James City County
P.O. Box 8784
Williamsburg, VA 23187-8784

Re: Stonehouse Commerce Park
LaGrange Parkway Extension
SP-82-00
LandMark Design Group # 1990140-000.11

Dear Scott:

I appreciate your willingness to meet with me to discuss the application of the Chesapeake Bay Protection Ordinance with regard to the La Grange Parkway Extension plans now under review. Enclosed are two spreadsheets summarizing the impervious area in relation to other land of the developer. Table One is an assessment of the paved area at completion of the presently proposed work in relation to land identified on existing plats as reserved for or associated with road construction. Without including similar open space granted to the Owner's Association, the percent impervious at 8.95% is below the 10% allowed by the ordinance.

Table Two is an inventory of the Commerce Park development to date. Presently it contains 228 acres of which 78.5 acres drain to the Richardson Mill Pond watershed. The remaining 149 acres drain to French Swamp. Seven sites comprising 44.1 acres are served by two existing 10 Point BMP's. We have estimated that there are an additional 220 acres that would be opened for development by the currently proposed extension. This gives a percent impervious within the French Swamp watershed of less than 4%.

Also enclosed are a copy of the Drainage Master Plan as revised in 1998 and a copy of the letter dated May 3, 1995 which outlines the approach to water quality planning being followed by the Stonehouse Development.

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants
4029 Ironbound Road, Suite 100, Williamsburg, VA 23188 (757) 253-2975 FAX: (757) 229-0049 lmdg@landmarkdgwb.com

I hope you find this helpful and will agree with our conclusion that structural BMP's are not necessary at this point. We fully expect to include such protections with the individual sites as they are developed.

Very truly yours,

The LandMark Design Group Inc.

Richard S. Phillips, P.E.
Senior Associate

RSP/cjp

Enclosure

Cc: Steve Campitell
File 1990140-000.11

WC035

WATERSHED	WC	MAINTENANCE PLAN	No	CTRL STRUC DESC	RCP Riser
BMP ID NO	035	SITE AREA acre		CTRL STRUC SIZE inches	72
PLAN NO	SP-68-94	LAND USE		OTLT BARRL DESC	RCP Barrel
TAX PARCEL		old BMP TYP	Wet Pond	OTLT BARRL SIZE inch	36
PIN NO	0640100001	JCC BMP CODE			
CONSTRUCTION DATE		POINT VALUE		EMERG SPILLWAY	Yes
PROJECT NAME	Stonehouse Commerce Park BMP # 1			DESIGN HW ELEV	89.19
FACILITY LOCATION	South of LaGrange Parkway			PERM POOL ELEV	83.25
CITY-STATE		SVC DRAIN AREA acres	0	2-YR OUTFLOW cfs	6.83
CURRENT OWNER	Stonehouse Inc.			10-YR OUTFLOW cfs	79.52
OWNER ADDRESS	530 East Park Court			REC DRAWING	Yes
OWNER ADDRESS 2	Suite A	SERVICE AREA DESCRI			
CITY-STATE-ZIP CODE	Sandston, Va. 23150	IMPERV AREA acres		CONSTR CERTI	No
OWNER PHONE		RECV STREAM			
MAINT AGREEMENT	Yes	EXT DET-WQ-CTRL	No	LAST INSP DATE	
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	0	INTERNAL RATING	
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	Also see WC047.	
		SW/FLOOD CONTROL	No		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu

Date Record Created:

Created By:

WS_BMPNO: WC035

Print Form

PRINTED ON:
Friday, March 12, 2010
2:55:56 PM

WATERSHED	WC
BMP ID NO	035
PLAN NO	SP-68-94
TAX PARCEL	
PIN NO	0640100001
CONSTRUCTION DATE	
PROJECT NAME	Stonehouse Commerce Park BMP # 1
FACILITY LOCATION	South of LaGrange Parkway
CITY-STATE	
CURRENT OWNER	Stonehouse Inc.
OWNER ADDRESS	530 East Park Court
OWNER ADDRESS 2	Suite A
CITY-STATE-ZIP CODE	Sandston, Va. 23150
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No

Return to Menu

MAINTENANCE PLAN	No
SITE AREA acre	
LAND USE	
old BMP TYP	Wet Pond
JCC BMP CODE	A2 Wet Pond
POINT VALUE	
SVC DRAIN AREA acres	32.6
SERVICE AREA DESCRI	
IMPERV AREA acres	
RECV STREAM	
EXT DET-WQ-CTRL	No
WTR QUAL VOL acre-ft	0
CHAN PROT CTRL	No
CHAN PROT VOL acre-ft	0
SW/FLOOD CONTROL	No
GEOTECH REPORT	No

CTRL STRUC DESC	RCP Riser
CTRL STRUC SIZE inches	72
OTLT BARRL DESC	RCP Barrel
OTLT BARRL SIZE inch	36
EMERG SPILLWAY	Yes
DESIGN HW ELEV	89.19
PERM POOL ELEV	83.25
2-YR OUTFLOW cfs	6.83
10-YR OUTFLOW cfs	79.52
REC DRAWING	Yes
CONSTR CERTIF	No

LAST INSP DATE 12/14/2001 Inspected by:

INTERNAL RATING 2

MISC/COMMENTS

Also see WC047.

Additional Comments:

WC047
WC035

Eng P. Heah, CFA
Senior Managing Director

Dominion Capital, Inc.
120 Tredegar Street, Richmond, VA 23219
Phone: 804-819-2104, Fax: 804-819-2216
E-mail: eng_heah@dom.com
Mailing Address: P.O. Box 26532, Richmond, VA 23261

013865

Fax [redacted]
Mobile [redacted]
Business [redacted]

Stephen M. Campitell, P.E.
Vice President, Engineering & Construction

DELMARVA
PROPERTIES INCORPORATED
2104 West Laburnum Avenue, Suite 209, Richmond, Va. 23227
A Chesapeake Company

PAGE 0646

RECEIVED
DEC 17 1997
AES CONSULTING ENGINEERS

757-[redacted]-876-2166

DECLARATION OF PROTECTIVE COVENANTS, EASEMENTS AND RESTRICTIONS

FOR

STONEHOUSE COMMERCE PARK

JAMES CITY COUNTY, VIRGINIA

OCTOBER 1, 1995

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Exhibit A: Description of the Property
Exhibit A-1: Plat of the Property
Exhibit B: Permitted Uses

DECLARATION OF PROTECTIVE COVENANTS, EASEMENTS AND RESTRICTIONS FOR STONEHOUSE COMMERCE PARK

THIS DECLARATION OF PROTECTIVE COVENANTS, EASEMENTS AND RESTRICTIONS is made and entered into as of October 1, 1995 by **STONEHOUSE INC.**, a Virginia corporation (the "Declarant"), and provides;

RECITALS

A. Declarant is the owner of certain real property located the County of James City, Virginia, more particularly described on Exhibit A attached hereto (which, together with any other property now or hereafter subjected to this Declaration, is referred to herein as the "Property").

B. Declarant desires to develop the Property as a commerce center with a mix of office, commercial and industrial uses known as "Stonehouse Commerce Park" (the "Project"), and to that end, to subject the Property to the covenants, restrictions, easements and other terms of this Declaration.

ARTICLE I

DECLARATION; PURPOSE

1.1. Declaration. Declarant hereby declares that the Property is and shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, charges and liens set forth in this Declaration. This Declaration shall run with the Property and every part thereof and shall be binding upon and inure to the benefit of all Owners, lessees, licensees, Occupants and their successors as set forth in this Declaration.

1.2. Purpose. It is the purpose of this Declaration to create a planned business development of high quality within the Stonehouse planned community, to assure the orderly and attractive development of the Property in an efficient and harmonious manner, to preserve and enhance property values, amenities and opportunities within the Property, to promote the health and safety of the Occupants and to maintain a harmonious relationship among the structures and the natural vegetation and topography thereon. This Declaration is designed to complement the Zoning Ordinance and other Laws, and where conflicts occur, the more rigid requirement shall prevail.

ARTICLE II

DEFINITIONS

Unless the context otherwise specifies or requires, each term defined in this Article shall, for all purposes of this Declaration, have the meaning indicated below.

"Affiliate of Declarant" means any entities directly or indirectly controlled by or under common control with Declarant, whether through the ownership of voting securities or by contract, partnership agreement, trust agreement or otherwise.

"Assessable Land" means all land within the Property other than Common Areas.

"Assessments" means, collectively, the General Assessments and the Special Assessments.

"Association" means the property owners association now or hereafter established pursuant to Section 9.2.

"Association Board" means the Board of Directors of the Association.

"Building" shall have the meaning set forth in the building code for the County.

"Clerk's Office" means the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City.

"Common Area" or "Common Areas" means and refers to (i) all real property (including the improvements thereto) specifically designated as Common Area on a plat of the Property recorded by Declarant, in any Supplemental Declaration or amendment to this Declaration or in any other instrument executed by Declarant and recorded in the Clerk's Office, (ii) all real property now or hereafter owned by the Association and intended to be devoted to the common use and enjoyment of the members of the Association, and (iii) such areas of easements and rights-of-way granted or assigned to the Association for the common use and enjoyment of the members of the Association for which the Association has assumed the responsibility for maintenance.

"County" means James City County, Virginia.

"Declarant" means Stonehouse Inc., a Virginia corporation, and any successor or assign designated as the "Declarant" in a written instrument recorded in the Clerk's Office.

"Declaration" means this Declaration of Protective Covenants, Easements and Restrictions, and any amendments or supplements thereto, including Supplemental Declarations.

"Design Review Board" means the Design Review Board created pursuant to Article V.

"Development Criteria" shall have the meaning set forth in Section 5.1(b).

"General Assessments" means the annual assessments provided for in Section 10.2.

"Governmental Entity" means any federal, state or local legislature, official, judge, administrator, agency, authority, or any other governmental or quasi-governmental entity, agency or official.

"Improvements" means any Buildings, underground installations, slope alterations, lights, roads, driveways, utility facilities and lines, parking areas, fences, satellite dishes, rooftop installations, screening walls and barriers, retaining walls, stairs, decks, windbreaks, plantings, planted trees and shrubs, poles, signs, loading areas and all other Structures or landscaping improvements of every type and kind.

"Lakes" means those lakes, if any, within the Property which are owned and maintained by Declarant or the Association and which are more particularly shown on the master plan for the Project approved pursuant to the Zoning Ordinance or on approved subdivision or site plans, as the same may be amended from time to time.

"Laws" means all statutes, laws, orders, rules, regulations, advisories, decisions, ordinances and other directives now or hereafter passed, enacted, promulgated, issued or adopted by any Governmental Entity.

"Lot" means a portion of the Property now or hereafter designated as a Lot or parcel of land on a recorded plat of subdivision or resubdivision of the Property or on a site plan approved by the County or, if no plat is recorded, each parcel conveyed as a separate parcel of real estate, and includes any Improvements now or hereafter appurtenant to the Lot.

"Member" means every Person who holds a membership in the Association.

"Mortgage" means a mortgage or deed of trust securing an indebtedness held by a Mortgagee.

"Mortgagee" means any financial institution, Declarant or an Affiliate of Declarant holding an indebtedness secured by a Mortgage on a Lot or a portion thereof.

"Occupant" means any Person who occupies a part of the Property as Owner, lessee or licensee, or in any other capacity.

"Owner" means the Person(s) who hold the record title to a Lot, but excluding those having such interest merely as security for the performance of an obligation.

"Permitted Uses" means with respect to any portion of the Property the permitted uses applicable thereto as set forth on Exhibit B to this Declaration.

"Person" means any natural person, corporation, partnership, trust, limited liability company or other entity.

"Plans" means the plans and other information required to be submitted by an Owner pursuant to Section 5.3.

"Project" means the mixed-use business development known as Stonehouse Commerce Park which may include all or a portion of the Property.

"Property" means the real property described on Exhibit A attached hereto, and any other property now or hereafter subjected to this Declaration.

"Rules and Regulations" means any rules and regulations adopted from time to time by Declarant or the Association to implement the objectives of this Declaration.

"Special Assessments" means the assessments provided for in Sections 6.1, 7.5, 8.6, 8.7, 10.3, 11.2, 11.3 and 12.2.

"Supplemental Declaration" means an instrument recorded by Declarant in the Clerk's Office which subjects additional property to this Declaration and /or which may contain such other provisions as are provided for in Articles III and IV of this Declaration.

"Structure" shall have the meaning set forth in the building code for the County.

"Utility Easements" shall have the meaning set forth in Section 11.1 of this Declaration.

"Zoning Ordinance" and "Zoning Ordinances" means any ordinance, regulation or provision enacted by the Board of Supervisors of the County regulating, restricting, permitting or prohibiting the use of land and the construction of Improvements

thereon and, for the purpose of this definition, shall include the conditions and provisions of any proffered conditions affecting the Property.

ARTICLE III

CHANGES IN PROPERTY; SUPPLEMENTAL DECLARATIONS

3.1. Right to Subject Additional Property to Declaration. Declarant reserves the right, at its discretion, at such time or times as it shall determine to subject to the provisions of this Declaration additional property owned by Declarant or an Affiliate of Declarant and located contiguous to or in close proximity to the Property, or such portions thereof as Declarant shall determine, together with improvements thereon and easements, rights and appurtenances thereunto belonging or appertaining. Each of the additions authorized pursuant to this Section shall be made by Declarant's recording in the Clerk's Office a Supplemental Declaration describing the additional property subjected to this Declaration. Each such instrument may also contain such additions, deletions and modifications to the provisions of this Declaration with respect to such additional property as may be desired by Declarant. Notwithstanding the foregoing, Declarant shall not be obligated to bring any such additional property within the scheme of development established by this Declaration. The failure of Declarant to extend the provisions of this Declaration to additional property shall not be deemed to prohibit the establishment of a separate scheme of development (including provisions substantially similar or identical to those contained herein) for such additional property to which this Declaration is not extended.

3.2. Deletions of Property. Declarant reserves the right, at its discretion, at such time or times as it shall determine after at least one-half of the Assessable Land has been conveyed to purchasers, to remove from the provisions of this Declaration any portion of the Property then owned by Declarant or an Affiliate of Declarant. Any deletion made by Declarant pursuant to this Section shall be made by Declarant's recording in the applicable Clerk's Office a Supplemental Declaration describing the property removed from this Declaration. From and after the date any such Supplemental Declaration is so recorded, the property described in such Supplemental Declaration shall be free and clear of this Declaration and all of the terms, covenants and restrictions contained herein.

3.3. Additional Restrictions. Declarant may, in its discretion, from time to time execute and record one or more Supplemental Declarations for the purpose of establishing certain additional or different covenants, easements and restrictions (including without limitation a different level of assessments) applicable to a specific portion or portions of the Property then

owned by Declarant or an Affiliate of Declarant and to be developed for a specific type of use.

3.4. No Approval Needed. The exercise of Declarant's rights under Sections 3.1, 3.2 and 3.3 is not conditioned upon or subject to the approval of other Owners and therefore the requirements set forth in Article XIII for amendments to this Declaration shall be inapplicable to Sections 3.1, 3.2 and 3.3 of this Declaration.

3.5 No Negative Reciprocal Easements. No negative reciprocal easement shall arise out of this Declaration or any Supplemental Declaration so as to bind any portion of the Property not expressly submitted thereto.

3.6. Master Plan. The existence of a master plan for the Property as part of the Zoning Ordinance or otherwise shall not be deemed to constitute a representation by Declarant that the real estate shown thereon shall be developed as depicted on the master plan, and the master plan may be amended from time to time in the sole discretion of Declarant.

ARTICLE IV

PERMITTED AND PROHIBITED USES

4.1. Permitted Uses. No portion of the Property shall be used for any purpose other than a Permitted Use and uses accessory thereto.

4.2. Prohibited Uses.

(a) Only Permitted Uses Allowed. No portion of the Property shall be used for any use other than a Permitted Use unless a variance for such use has been granted pursuant to Section 14.1 of this Declaration. No portion of the Property shall be used for any disreputable purpose or in violation of any Laws.

(b) Nuisances. Notwithstanding approval from any Governmental Entity or the fact that the use in question is a Permitted Use, no use or operation will be permitted which creates objectionable noise, smoke, odors or which in any other way, in the opinion of the Design Review Board, will constitute a nuisance or degrade the value of the Property.

4.3. Lakes and Water Bodies.

(a) Aesthetic Amenities Only. All Lakes, ponds and streams within the Property, if any, shall be aesthetic amenities

only, and no use thereof, including without limitation, swimming, boating, playing or use of personal floatation devices shall be permitted. This paragraph shall not apply to prohibit any use by Declarant specifically authorized under this Declaration. Neither Declarant nor the Association shall be responsible for any loss, damage or injury to any person or property arising out of the unauthorized use of the Lakes, ponds, streams or other water bodies within the Property.

(b) Use of Lakes by Lakefront Lot Owners. The Owners of Lots which front on a Lake shall not have any riparian rights appurtenant to their Lots to use the Lakes for any purposes whatsoever, and, except as expressly provided in this Declaration, such Owners' rights, if any, with respect to Lakes shall be no greater than the rights of any other Owners. Without limiting the generality of the foregoing, the Owners of such Lots shall not have the right to construct or maintain any pier, dock or other structure in or affecting the Lakes or to take any water from any Lakes for irrigation or otherwise.

(c) Use of Lakes by Declarant. Without limiting Declarant's rights with respect to any Lakes, Declarant shall have those rights set forth in Section 11.7 of this Declaration.

(d) Trash and Debris. Each Owner of a Lot adjoining a Lake shall keep his Lot free of trash, debris and any unsightly items. No bottles, cans, trash, garbage, chemicals, wastes or other potentially harmful substances or pollutants shall be deposited or discharged on or into a Lake or on the property surrounding a Lake.

(e) Drainage Into Lakes. Except as expressly permitted in Article XI of this Declaration, any Supplemental Declaration, or by Declarant or the Association (if Declarant's rights hereunder have been assigned to the Association), no Owner shall install or maintain any drainage ditches, pipes or other facilities to drain surface water into any Lakes without the prior approval of Declarant or the Association Board, as the case may be, it being the intention hereof that only natural drainage of surface water shall be permitted into Lakes. No Owner (other than Declarant) shall in any manner decrease or disturb the flow of water into or out of any Lakes.

ARTICLE V

DESIGN REVIEW

5.1. Design Review Board.

(a) Appointment; Rights. Declarant shall appoint a Design Review Board to review and, as appropriate, approve or disapprove Plans submitted by Owners in accordance with this

Article. The Design Review Board shall consist of three persons, at least one of whom shall have architectural or building design experience. The right to appoint and remove all members of the Design Review Board shall be and is hereby vested solely in Declarant, so long as it owns any portion of the Property. After Declarant no longer owns any portion of the Property or at such earlier date as Declarant may elect, the right to appoint the members of the Design Review Board shall vest in the Association Board. The members of the Design Review Board shall serve for such terms as Declarant or the Association Board, as the case may be, shall determine. If Declarant does not appoint an Design Review Board, the duties and rights in this Declaration which are to be performed or are exercisable by the Design Review Board shall be performed or exercised by Declarant.

(b) Development Criteria. The Design Review Board shall have the authority to promulgate development guidelines and rules ("Development Criteria") designed to implement the purpose and objectives of this Declaration. The Development Criteria shall be consistent with the provisions of this Declaration. The Development Criteria may be amended from time to time by the Design Review Board in its sole discretion. Copies of the Development Criteria and any amendments thereof shall be provided by the Design Review Board to each Owner upon request. The Design Review Board shall have the authority to grant variances from requirements of the Development Criteria where the Design Review Board finds, in its sole discretion, that the strict application thereof would cause undue hardship and that the granting of the variance would not have an adverse impact on other Owners or Lots. Nothing contained in the Development Criteria in effect from time to time shall be deemed to create or imply a negative reciprocal easement or covenant in favor of any Person or as to any portion of the Property.

(c) Other Responsibilities. In addition to the responsibilities provided in this Article, the Design Review Board shall have such other rights, authority and responsibilities as may be provided elsewhere in this Declaration or in any Supplemental Declaration.

5.2. Plan Approval Required. No Improvement shall be constructed, erected, used, placed, altered, repainted a different color, added to, maintained or permitted to remain on the Property until the Plans therefor shall have been submitted to and approved in writing by the Design Review Board as provided in this Article; provided, however, that these approval requirements shall not apply to Declarant or an Affiliate of Declarant with respect to (i) development of Common Areas, or (ii) the installation of streets, walkways, utilities and other public facilities to serve any Lot.

5.3. Submission of Plans. Owner or his designated representative shall prepare and submit to the Design Review Board preliminary and final Plans as set forth in the Development Criteria, as in effect from time to time.

5.4. Approval and Disapproval.

(a) Standards. The Design Review Board shall have the right to disapprove the Plans submitted to it if (i) they are not in accordance with this Declaration or the Development Criteria, (ii) they are incomplete, or (iii) the Design Review Board determines, in its sole discretion, that the Plans and such specifications, or details, or any part thereof, are contrary to the best interests of the Property and the Owners. In this connection, the Design Review Board may base its approval or disapproval on, among other things, the architectural design concept, the adequacy of Lot dimensions, conformity and harmony of external design with neighboring Lots and types of operations and uses thereof, relation to topography, grade and finished ground elevation of the Lot being improved to that of neighboring Lots, proper facing of main elevation with respect to nearby streets, conformity to the overall plans for the development of the Project, conformity of the Plans to the purpose and general plan and intent of this Declaration and such other factors as the Design Review Board, in its sole discretion, deems relevant. The foregoing notwithstanding, nothing in this Declaration shall require the Design Review Board to approve the Plans for Improvements on a Lot on the grounds that the layout, design and/or other aspects of such Improvements are the same or substantially the same as the layout, design and other aspects of Improvements approved for another Lot.

(b) Statement of Reasons for Disapproval. In any case where the Design Review Board shall disapprove any Plans submitted hereunder or shall approve the same only as modified or upon specified conditions, notice of such disapproval or qualified approval shall be given to the Owner submitting such Plans within thirty (30) days after their submission, and such notice shall be accompanied by a statement of the specific reasons therefor.

(c) Time for Approval. The Design Review Board shall not be required to review any Plans unless and until the submitted Plans contain all the items required by this Article V and the Development Criteria, and such 30-day review period shall not commence until the Design Review Board declares the submission complete by written notice to the Owner. If the Design Review Board fails to approve, disapprove or request any additions or supplemental information relating to, any preliminary or final Plans within thirty (30) days after such Plans are fully submitted, then such Plans shall be deemed to have been approved.

(d) Expiration of Approval. If work is not commenced within nine months from the date the Design Review Board approves the Plans for such work, then such approval shall be deemed revoked by the Design Review Board, unless the Design Review Board, in its sole discretion, extends the time for commencing work. All work covered by such approval shall be complete within two years after the commencement thereof, except for such period of time as such completion is rendered impossible or would result in great hardship due to strikes, fires, national emergencies, critical materials shortages, or other intervening forces beyond the control of the Owner, lessee, licensee or Occupant or his agent, unless the Design Review Board, in its sole discretion, extends the time for completion. For the purposes of this Declaration, work on an Improvement shall be deemed to have "commenced" when the Improvement site has been graded and, in the case of Buildings, footings or foundations have been poured or otherwise installed.

(e) Limitation of Liability. The approval by the Design Review Board of any Plans, and any requirement by the Design Review Board that the Plans be modified, shall not constitute a warranty or representation by the Design Review Board of the adequacy, technical sufficiency or safety of the Improvements described in such Plans, as the same may be modified, and the Design Review Board shall have no liability whatsoever for the failure of the Plans or the Improvements to comply with applicable Laws or to comply with sound engineering, architectural or construction practices. Approval of Plans by the Design Review Board does not constitute approval by any Governmental Entity. In addition, in no event shall Declarant or the Design Review Board or any agent of either of the foregoing have any liability whatsoever to an Owner, a contractor or any other Person for any costs or damages (consequential or otherwise) that may be incurred or suffered on account of the Design Review Board's approval, disapproval or conditional approval of any Plans or the granting of any variance or for any defects in any work done according to any approved Plans.

5.5. Compliance with Plans. After approval by the Design Review Board of the Plans for an Improvement, such Improvement shall be constructed, erected, maintained, altered or enlarged strictly in accordance with the approved Plans. No construction or use that is inconsistent with, in addition to, or different from the approved Plans shall be commenced or permitted until Plans reflecting such change or addition have been submitted to and approved by the Design Review Board in accordance with this Article.

5.6. Liability for Violation. Any Person violating any provisions of this Article shall be liable for all costs incurred by the Design Review Board, the Declarant or any other Person who

seeks to enjoin or otherwise remedy such violations, including, but not limited to, attorney's fees and court costs.

5.7. Right to Repurchase. If an Owner fails to commence construction of an Improvement within the first to occur of (i) two years from the date the Lot on which the Improvement is to be constructed was purchased from Declarant, or (ii) one year and nine months from the date the Plans for such Improvement have been approved by the Design Review Board, and if such failure continues thereafter for thirty (30) days after written notice from the Design Review Board, then Declarant shall have the option to purchase the Lot in question for a price equal to the price at which such Owner purchased the Lot. Declarant shall exercise such purchase option by giving notice to such Owner at any time after the end of such thirty (30) day period and before such Owner commences construction of the Improvements in question. Such notice shall specify a date not less than sixty (60) days hence on which the closing of the purchase shall occur. At the closing, the Owner shall convey the Lot to Declarant by general warranty deed free and clear of any liens, encumbrances, mortgages, leases, contractual obligations or other matters affecting title other than those which existed on the date Declarant conveyed the Lot to the Owner or its predecessor in title. Declarant shall have the right to apply the purchase price directly to discharge and have released any and all liens, encumbrance, mortgages, leases, contracts or other matters affecting title. The repurchase right contained in this Section may be waived by Declarant in writing as to any portion of the Property.

ARTICLE VI

PARKING

6.1. Automobile Parking.

(a) On-Site Parking Required. The Owner of each Lot shall provide adequate automobile parking on such Owner's Lot or in Improvements on the Lot or in a structured garage on the Lot capable of accommodating the reasonable parking needs of its employees, visitors and company vehicles and at all times in compliance with the Zoning Ordinance. No use or activity shall be permitted on any Lot unless adequate parking is provided on the Lot for such use or activity in accordance with Plans approved by the Design Review Board and the other terms and conditions set forth herein. If the parking requirements on any Lot increase as a result of (i) a change in use of the Lot, (ii) an increase in the number of employees working at the Lot, or (iii) a change in the Zoning Ordinance, it shall be the Owner's responsibility to provide additional parking areas, as approved by the Design Review Board in order to accommodate such increased parking requirements. Such additional parking areas shall be provided prior to, or

concurrently with, the institution of such changed use or the employment of such additional employees or the effective date of such change in the Zoning Ordinance.

(b) Off-Site Parking. Each Owner or Occupant of any Lot shall use its best efforts to prevent its employees, lessees, agents, contractors, customers and visitors from parking on any public street within the Property or Common Area. Notwithstanding the foregoing, the Design Review Board shall have the right, upon request of an Owner, to issue temporary off-site parking permits for construction vehicles specifying the period of time, the number of vehicles and the permitted areas on or for which such vehicles may be parked. If any Owner or Occupant of a Lot, or any of its employees, lessees, agents, contractors, customers or visitors shall park their vehicles on any public street within the Property or Common Area, and if such use is not discontinued after written notice from Declarant that such use is in violation of this Declaration, Declarant shall have the right to assess a charge for each day that each vehicle is parked on a public street or Common Area in the amount of $100.00 or such other amount as Declarant may determine. Such charge together with all costs and expenses incurred by Declarant in the enforcement of this Section, shall be assessed against, and shall be payable by, the Owner, regardless of whether it is such Owner's vehicles that are parked on the public street or Common Area or the vehicles of the Occupant of the Lot, or any of their employees, agents, contractors, customers or visitors, it being the responsibility of the Owner to see to it that such vehicles are not parked on any public street or Common Area at any time. Such charge shall be deemed a Special Assessment enforceable in accordance with Section 10.3 below. Declarant shall also have the right to cause vehicles parked on any Common Area or public street within the Property to be removed by towing or otherwise to a licensed garage for storage until called for by the owner of the vehicle or his agent. In the event of such removal or storage, the owner of the vehicle involved shall be chargeable with, and such vehicle may be held for, the charge for its removal and storage. Neither the Association nor Declarant shall be responsible for any damages to such vehicles caused by their removal.

6.2. Truck Loading and Parking. Except during the process of loading or unloading, trucks and commercial vehicles shall only park in those areas designated under the Rules and Regulations, unless parked in the rear or in suitably screened areas designated for such use on the approved Plans.

ARTICLE VII

COMMON AREAS

7.1. Obligations of Declarant. Declarant, or the Association, after such time as Declarant has conveyed the Common Area to the Association, subject to the rights of the Owners as set forth in this Declaration, shall be responsible for the maintenance, management, operation and control of the Common Areas (except for such portions thereof as are the responsibility of Owners as hereinafter set forth) and all Improvements thereon (including fixtures, personal property and equipment related thereto) and shall keep the same in good, clean and attractive condition, order and repair.

7.2. Owners' Rights of Enjoyment. Subject to the provisions of this Declaration, every Owner shall have a right of enjoyment in and to the Common Areas which shall be appurtenant to and shall pass with the title to every Lot.

7.3. Limitations on Owners' Rights. The Owners' rights of enjoyment in the Common Areas shall be subject to the following:

(i) the right of Declarant or the Association to establish reasonable Rules and Regulations for the use of the Common Areas;

(ii) the right of Declarant or the Association to suspend the right of an Owner to use or benefit from any of the Common Areas for any period during which such Owner has failed to pay when due any Assessment payable by such Owner under this Declaration;

(iii) the right of Declarant or the Association to suspend the right of an Owner to use or benefit from any of the Common Areas for any period during which any other infraction by the Owner of this Declaration or the Rules and Regulations remains uncorrected after the last day of a period established for correction by Declarant (such period to be stated in a notice to the Owner together with a statement of the infraction complained of and the manner of its correction);

(iv) the right of Declarant or the Association to mortgage any or all of the Common Areas for any purpose;

(v) the right of Declarant or the Association to grant Utility Easements or other easements across the Common Areas as provided in Article XI hereof;

(vi) the right of Declarant or the Association to dedicate or transfer all or any part of the Common Areas to any public agency, authority or utility for such purposes and subject to such conditions as may be desired by Declarant or the Association; and

(vii) all of the other easements, covenants and restrictions provided for in this Declaration and applicable to the Common Areas.

7.4. Delegation of Use. Any Owner may delegate his right of enjoyment to the Common Area to any other Occupants of his Lot and to his invitees or guests, subject to the terms of this Declaration and any Rules and Regulations as may be established from time to time.

7.5. Damage or Destruction of Common Area by Owner. If any Common Area or Improvement thereon or any facility owned by the Association is damaged or destroyed by an Owner or an Occupant of a Lot, or by their tenants, guests, licensees or agents, and Owner of the Lot does not repair such damage within fifteen (15) days after its occurrence in a good and workmanlike manner and restore such Common Area, Improvement or facility to its existing state preceding such damage or destruction, then Declarant or the Association may repair such damage at the Owner's expense. The cost of such repairs shall become a Special Assessment upon the Lot of such Owner and shall constitute a lien upon such Owner's Lot and be collectible in the same manner as other Assessments set forth herein.

7.6. Rights in Common Areas Reserved by Declarant. Until such time as Declarant conveys a Common Area to the Association, Declarant shall have the right as to that Common Area, but not the obligation (i) to construct such Improvements thereon as it deems appropriate for the common use and enjoyment of Owners, and Declarant shall maintain such Common Area in neat and clean condition and repair; and (ii) to use the Common Area for other purposes not inconsistent with the provisions of this Declaration (including, without limitation, for a marketing or sales office, construction control center or hospitality center).

7.7. Title to Common Area. Declarant shall convey each Common Area to the Association, free and clear of all liens but subject to this Declaration and all other easements, conditions and restrictions of record at such time as the Improvements thereto are completed and in a condition acceptable to the Association. Regardless of whether the Common Areas have actually been conveyed to the Association, Owners and the Association shall have all the rights and obligations imposed by this Declaration, any Supplemental Declaration, and the Articles of Incorporation and the Bylaws of the Association from and after the date such Common Areas are designated as such by recordation of an appropriate instrument in the Clerk's Office. The Association shall be liable from the date a deed or deeds to such Common Area(s) is/are recorded in all Clerk's Office for payment of taxes, insurance and maintenance costs with respect thereto. Until the Common Areas are conveyed to the Association, Declarant

shall be liable for payment of taxes, insurance and maintenance costs with respect thereto.

ARTICLE VIII

ADDITIONAL COVENANTS

8.1. Maintenance. All Lots and Improvements thereon shall be maintained in accordance with this Declaration, the Development Criteria and any Rules and Regulations. No Improvement on the Property shall be permitted by its Owner or Occupant to fall into disrepair and each such Improvement shall at all times be kept in neat, clean and good condition and repair, properly maintained and adequately painted or otherwise finished, clean and safe and in accordance with all legal requirements. All asphalt or concrete paved surfaces shall be resurfaced or sealed as needed and all potholes shall be promptly repaired. Unimproved Lots shall be maintained in a reasonably neat condition, free of debris. No rubbish or debris of any kind shall be placed or permitted to accumulate upon or adjacent to any Lot, except in approved waste containers in screened areas in locations at the rear or sides of Improvements and as shown on the Plans approved by the Design Review Board.

8.2. Landscape Maintenance. All landscaping on each Lot, including landscaping located within any easements reserved by Declarant for such purpose and adjoining public rights-of-way, shall be properly maintained by the Owner of the Lot, which maintenance shall include all necessary cutting, watering, fertilizing, aerating, spraying, pruning and required replacements. Dead or damaged planting material shall be promptly replaced. Each Owner shall be responsible for proper drainage from its Lot.

8.3. Compliance; Environmental Protection.

(a) Compliance. Each Owner shall comply with all Laws applicable to such Owner's Lot and the Improvements thereon.

(b) Environmental Compliance. In addition to and without limiting the terms of the previous paragraph, Owners and Occupants shall comply with all Laws relating to the discharge, storage and disposal of all hazardous or toxic wastes and substances and other environmental contaminants (as any of the foregoing may now or in the future be defined by any Governmental Entity) on, at or from such Owner or Occupant's Lot or otherwise relating to environmental protection.

(c) Inspections. Declarant on behalf of itself, its agents and the Association reserves the perpetual right, privilege and easement to enter any part of the Property for the purpose of

gathering environmental information, during reasonable hours and subject to reasonable security requirements, to determine the quality of the soil, ground water, storm water and any emissions or discharges from the Property.

(d) Clean-up; Indemnification. By accepting a deed to a Lot or using a Lot pursuant to a lease or otherwise, each Owner and Occupant hereby agrees (i) to clean up and remove or contain (but only if permitted by Law) in accordance with all applicable Laws any hazardous or toxic substances or wastes or other environmental contaminants on or under such Owner's or Occupant's Lot by reason of the act or omission of such Owner Occupant, or stored, generated, disposed of or discharged by such Owner or Occupant or from such Owner's or Occupant's Lot in violation of applicable laws, and (ii) to indemnify, defend and hold harmless Declarant, any Affiliate of Declarant, the Association, their agents and each of the other Owners from and against any and all foreseeable and unforeseeable claim, loss, damage, cost or expense (including, without limitation fines, clean-up costs, costs of relocating tenants, employees and agents, restoration costs, loss of income and attorneys' fees) incurred or suffered by the indemnified party as a result of any hazardous or toxic waste or substance or other environmental contaminant discharged from, stored at or disposed of at or from the indemnifying party's Lot after the date of recordation of the deed to such Lot.

8.4. Damage and Destruction. If any Improvements shall be damaged or destroyed by fire or other hazards, then the Owner of such Improvements shall either (i) rebuild such Improvements as promptly as reasonably possible but in any event within twelve (12) months of the date such damage or destruction occurred (with the Plans for such repair being subject to approval of the Design Review Board if such Plans differ from the initially approved Plans for the Improvements), or (ii) demolish and raze the damaged Improvements, remove the slab, if any, fill in all excavations, plant grass and perform such other work as may be necessary to leave the area on which such damaged Improvements were located in a clean, sightly and safe condition.

8.5. Rezoning. For a period of thirty (30) years from the date hereof, no Owner or contract purchaser of any Lot shall apply for rezoning, change of proffers, special use permit or special exception for any part of the Property without the prior written consent of Declarant or the Association (as the case may be), which consent may be granted or withheld in its sole discretion for any reason or for no reason.

8.6 Storm Drainage Systems. Owners shall participate in any storm water management program established or to be established for the Property by Declarant and/or the Association designed to serve their properties by separate agreement with the

Declarant and/or the Association. Participating Owners shall contribute to the cost of maintaining the common retention areas and other shared stormwater management facilities ("Stormwater Management Facilities") on a contractual basis, as set forth in the written agreements between the participating Owners and the Declarant and/or the Association (the "Stormwater Management Facilities Agreement"). Participating Owners who contract with the Association shall be assessed periodically by the Declarant or Association, as provided in the particular Stormwater Management Facilities Agreement and in Section 10.3 of this Declaration.

8.7 Special Service Districts. Owners of two or more Lots, who desire to share the cost of (i) maintaining, rebuilding and repairing private streets, or (ii) maintaining lawns and/or landscaping, or (iii) providing other common services, may enter into a Special Service District Agreement ("Special Service District Agreement") with the Declarant or Association for the provision of specific common services. The share of the cost of said services to be paid by each benefitted Owner shall be set forth in the Special Service District Agreement. Benefitted Owners shall be assessed periodically by the Declarant or the Association, as provided in the particular Special Service District Agreement and in Section 10.3 of this Declaration.

ARTICLE IX

ADMINISTRATION

9.1. Authority. This Declaration shall be administered by Declarant, except for those functions delegated to a managing agent for the Property or specifically assigned by Declarant to a successor Declarant or to the Association in accordance with Section 12.5 below. At such time and to the extent Declarant so assigns to the Association any of Declarant's rights, duties and obligations under this Declaration, this Declaration shall be administered by the Association and by any managing agent for the Property. Declarant shall have the right, which right may be assigned to the Association as provided in Section 12.5, to adopt from time to time Rules and Regulations to implement the objectives of this Declaration.

9.2. Property Owners Association. On or before the date on which Declarant ceases to own seventy-five percent (75%) or more of the Property, Declarant shall establish a property owners association which shall be a non-profit organization incorporated in the Commonwealth of Virginia for the purposes set forth herein (the "Association"). If Declarant fails to form the Association by the date on which it ceases own seventy-five percent (75%) or more of the Property, the Owners shall have the right to form the Association on the terms set forth herein.

9.3. Owners as Members. From and after the date the Association is formed, every Owner shall be a Member of the Association. Membership shall not be separated from ownership of any Lot. Upon the closing of the sale of a Lot and recordation of the deed thereto, the membership of the selling Owner shall cease and the purchasing Owner shall become a member of the Association.

9.4. Classes of Membership.

(a) Two Classes of Membership. The Association shall have two classes of voting membership: Class A and Class B.

(b) Class A. Class A Members shall be all Owners including Declarant. Each Class A Member shall be entitled to cast its "proportionate share" of votes. An Owner's proportionate share shall equal the product of (i) 100 multiplied by (ii) a fraction, the numerator of which is the total acreage of such Owner's Lot, and the denominator of which is the total acreage of all Lots within the Property. When more than one Person holds an interest in any Lot, all such Persons shall be Members and the vote for such Lot shall be exercised as they among themselves shall determine. The Person who shall be entitled to cast the vote of the Owners of such Lot shall be the Person (who may be the agent of the Owners) named in a certificate executed by all of the Owners of the Lot and filed with the secretary of the Association; however, in the absence of such named Person at a meeting, another Owner of such Lot who is present at the meeting shall be entitled to cast the vote for such Lot, unless otherwise provided in the certificate.

(c) Class B. The Class B Member shall be Declarant, who shall be entitled to cast the Class B vote. The Class B membership shall terminate on the earliest of the following:

(i) the date on which Declarant ceases to own at least twenty-five percent (25%) of the Property;

(ii) the date on which Declarant executes and records in the Clerk's Office an amendment to this Declaration terminating the Class B membership (which amendment shall not require the consent of any other Owners as provided in Section 13.2); or

(iii) twenty (20) years from the date the Association is formed.

9.5. Suspension of Voting Rights. The Association Board may suspend the voting rights of any Member that is subject to any Assessment under this Declaration during any period in which any such Assessment shall be past due; provided, however, that upon payment of such Assessment the voting rights of such Member shall automatically be restored.

9.6. **Articles and Bylaws to Govern.** Except to the extent expressly provided in this Declaration, all of the rights, powers and duties of the Association and the Members, including the Member's voting rights, shall be governed by the Articles of Incorporation and the Bylaws of the Association. The Articles shall provide, among other things, that the Class B Member shall appoint the Members of the Association Board until the Class B membership terminates. However, in the event of any conflict or inconsistency between the provisions of this Declaration and the provisions of such Articles or Bylaws, this Declaration shall control.

9.7. **Dissolution of the Association.** The Association may be dissolved at a duly held meeting at which a quorum is present upon the vote of more than two-thirds (2/3) of the votes, in person or by proxy, of the Class A Members and the vote of the Class B Member. Prior to dissolution of the Association, other than incident to a merger or consolidation, the assets of the Association shall be offered for dedication to the locality in which they are situated. In the event that such dedication is refused acceptance upon dissolution, such assets shall be granted, conveyed and assigned to any nonprofit corporation, association, trust or other organization to be devoted to similar purposes.

ARTICLE X

ASSESSMENTS

10.1. **Covenant for Assessments.** Declarant covenants and each Owner by acceptance of a deed to any portion of the Property is deemed to covenant and agree to pay General Assessments and Special Assessments as provided in this Declaration and in the Bylaws.

10.2. **General Assessments.** General Assessments shall be assessed annually and shall be paid annually or in more frequent intervals as shall be specified by Declarant (or the Association if Declarant's rights hereunder have been assigned to the Association). General Assessments shall be assessed to cover the anticipated annual cost of operating, maintaining and managing the Common Areas; carrying out the duties of Declarant (or the Association if Declarant's rights hereunder have been assigned to the Association) under this Declaration; payment of taxes and other levies against the Common Areas; procurement of insurance; payment of assessments or fees under maintenance or cost-sharing agreements between Declarant and/or the Association and other property owners associations within the Stonehouse planned community; establishment of reasonable reserves for Declarant's (or the Association's) duties under the Declaration; and for such other purposes as may be authorized by or pursuant to the Articles of Incorporation or Bylaws of the Association. Until the

Association is formed, Declarant shall adopt an annual budget for each fiscal year, which budget shall provide for the annual level of General Assessments (including provision for reserves and physical damage insurance deductibles). Written notice of the General Assessments and due dates shall be sent to every Owner subject thereto. After the Association has been formed, General Assessments shall be established and increased or decreased from time to time by the Association Board pursuant to the Bylaws.

10.3. **Special Assessments.** Special Assessments shall be assessed for any capital improvements to the Common Areas, but the amount of the Special Assessments for capital improvements on the Common Areas in any year shall not exceed the amount of the General Assessment for that year without (i) a majority vote of the Owners if the Association has not been formed, or (ii) if the Association has been formed, the vote of a majority of Members who are voting in person or proxy plus the consent of the Class B Member (for so long as the Class B Member shall exist) at a meeting of the Association duly called for such purpose. In any vote taken by Owners or Members pursuant to the previous sentence, each Owner shall be entitled to cast its proportionate share of votes as calculated pursuant to Section 9.4(b). If the Special Assessment for any year does not exceed the General Assessment for that year, then such Special Assessments may be established by Declarant or the Association, as the case may be, without a vote of the Owners. Written notice of Special Assessments and due dates shall be sent to each Owner. In addition, Special Assessments shall be assessed against the Lots of benefitted Owners for Stormwater Management Facilities and for Special Service Districts, where applicable.

10.4. **Apportionment.** Declarant shall apportion each Assessment among the Owners based upon the sum of the square footage of land in each Owner's Lot as a percentage of the total Assessable Land; provided, however, that Declarant shall have the right to establish reasonable but different levels of Assessments for different Lots and/or states of construction.

10.5. **Liability for Assessments.** The Assessments and other charges provided in this Declaration, together with interest thereon and costs of collections thereof, as hereinafter provided, shall be a charge on the Lots and Improvements thereon and shall be a continuing lien upon the Lot against which each such Assessment is made. Each such Assessment, together with late charges, interest, costs and attorneys' fees, shall also be the personal obligation of the Person who was the Owner of such Lot at the time when the Assessment fell due. No Owner may waive or otherwise avoid liability for the payment of the Assessments provided for herein by non-use of the Common Area or abandonment of his Lot.

10.6. **Remedies in Event of Default.** If any Owner fails to pay an Assessment when due and payable, the Assessment shall be subject to a late charge in the amount of five percent (5%) of the delinquent Assessment and shall bear interest from the due date at the rate equal to the greater of eighteen percent (18%) per annum or the highest legal rate. If an Assessment is not paid by the due date, it shall become delinquent and Declarant may thereafter send a notice of such delinquency to the Owner, in conformity with the provisions of Section 14.3, stating that if the delinquent Assessment is not paid in full within thirty (30) days after the date of such notice Declarant (or the Association if Declarant's rights hereunder have been assigned to the Association) may thereafter file a written notice of such delinquency (the "Lien Notice") in the applicable Clerk's Office to evidence the lien upon the Lot against which such Assessment was made. Such Lien Notice, setting forth the amount of such unpaid Assessment, the name of the Owner of the Lot and the legal description of the Lot shall be signed by Declarant (or an officer of the Association if Declarant's rights hereunder have been assigned to the Association) and shall be recorded in the applicable Clerk's Office. Declarant or the Association may foreclose the lien for the Assessments provided for in this Declaration by a bill in equity in the same manner as provided for the foreclosure of mortgages, vendor's liens and liens of similar nature. In addition, either in the first instance or for deficiency following foreclosure, Declarant or the Association may bring an action at law to collect such indebtedness against the Owner personally obligated to pay the same. Interest, late charges, costs and attorneys' fees of any such action including the filing of the Lien Notice, shall be added to the amount of the Assessments due and shall be secured by the Assessment lien.

10.7. **Subordination of Lien to Mortgages.** The lien upon each of the Lots securing the payment of the Assessments shall be prior to all other subsequent liens and encumbrances except (i) real estate tax liens on such Lots, (ii) liens and encumbrances recorded prior to this Declaration, and (iii) sums unpaid on and owing under any Mortgage recorded prior to the perfection of such lien.

10.8. **Exempt Property.** The following property subject to this Declaration shall be exempt from the Assessments and liens created herein: (i) all properties dedicated and accepted by a public authority; and (ii) all Common Areas.

ARTICLE XI

EASEMENTS

11.1. **Utility Easements.** Declarant hereby reserves perpetual easements, rights and privileges to install, maintain,

repair, replace and remove poles, wires, cables, conduits, pipes, mains, pumping stations, siltation basins, tanks and other facilities, systems and equipment for the conveyance and use of electricity, telephone service, sanitary and storm sewer, water, gas, cable television, drainage, irrigation and other public or private conveniences or utilities, upon, in or over those portions of the Property (including Lots and Common Areas) as Declarant may consider to be reasonably necessary (the "Utility Easements"). However, except as herein provided, no Utility Easements shall be placed on the portion of a Lot on which is already located a Building which was approved by the Design Review Board or on which a Building is to be located pursuant to Plans approved by the Design Review Board. The Utility Easements shall include the right to cut and/or remove trees, bushes or shrubbery and such other rights as Declarant or the Governmental Entity or utility company providing the utilities may require. The utility lines installed pursuant to the Utility Easements must be installed below ground level, except as otherwise provided in any Supplemental Declaration. Declarant shall have the right to convey or assign the benefit or use of Utility Easements to other Owners, to any Governmental Entity or utility companies, to the Association and to any other Person.

11.2. **Erosion Control.** Declarant reserves a perpetual easement, right and privilege to enter upon any Lot or Common Area, either before or after any Improvement has been constructed thereon or during such construction, for the purpose of taking such erosion control or stormwater management measures as Declarant deems necessary to prevent or correct soil erosion or siltation thereon or in connection with the Lakes provided, however, that Declarant shall not exercise such right unless it has given the Owner of the Lot or the Association (as to the Common Area) at least five (5) days' prior notice thereof (or such shorter notice as shall be appropriate in an emergency as determined by Declarant) and the Owner or the Association, as the case may be, has failed to take appropriate action to correct or prevent the erosion or siltation problem. The cost incurred by Declarant in undertaking such erosion control measures on any Lot, Common Area or Lake shall become a Special Assessment upon the Lot owned by the Owner that Declarant deems responsible and shall constitute a lien against the Lot and shall be collectible in the manner provided herein for the payment of Assessments. This Section shall not apply to Lots owned by Declarant.

11.3. **Maintenance of Lots.** Declarant reserves the perpetual easement, right and privilege, to enter upon any Lot, after at least ten (10) days' notice to the Owner thereof, for the purpose of mowing, removing, clearing, cutting or pruning underbrush, weeds or other unsightly growth, dispensing pesticides, herbicides and fertilizer and grass seed, removing trash and debris and taking such other action as Declarant may consider necessary to correct any condition which unreasonably

detracts from the overall beauty of the Property or which may constitute a violation of this Declaration, the Development Criteria or the Rules and Regulations or a hazard or nuisance. The cost incurred by Declarant in taking such action shall constitute a Special Assessment upon the Lot and shall be collectible in the manner provided herein for the payment of Assessments. This Section shall not apply to Lots owned by Declarant.

11.4. Construction Easements and Rights. Notwithstanding any provision of this Declaration or of any Supplemental Declaration, until such time as the Class B membership terminates, Declarant shall have an easement of ingress, egress and use over any lands not conveyed to an Owner for (i) movement and storage of building materials and equipment, (ii) erection and maintenance of directional and promotional signs and (iii) conduct of sales and other promotional activities.

11.5. Right of Entry for Governmental Personnel. A right of entry on any Lot and Common Area is hereby granted to law enforcement officers and fire and rescue personnel as needed to lawfully carry out their duties, including enforcement of cleared emergency vehicle access.

11.6. Easement for Landscaping, Signs and Related Purposes. There shall be and is hereby reserved to Declarant until such time as the Class B membership terminates, a non-exclusive easement over all Lots and Common Area for a distance of twenty (20) feet behind any Lot line which parallels, and is adjacent to, a street (whether public or private) for the purpose of erecting and maintaining street intersection signs, directional signs, temporary promotional signs, plantings, street lights, entrance features and/or "theme areas," lighting, stone, wood, or masonry wall features and/or related landscaping. Exercise of this easement shall be with the consent of the Owner of an affected Lot, or the Design Review Board if such Owner does not consent.

11.7. Easement for Use of Water Bodies and Irrigation. Declarant hereby reserves a perpetual easement and right to use the Lakes and the ponds, creeks or water bodies lying within the Common Area for the purposes of irrigation of other parcels now, or in the future, owned by Declarant or third parties. Declarant may irrigate all or portions of such other parcels with water drawn from the Lakes and/or the ponds, creeks and other water bodies lying within the Common Area. Declarant further retains: (i) the right to lay, install, construct and maintain an irrigation system, including underground irrigation lines, over all Common Areas or landscaping easement areas granted to the Association for the purpose of providing irrigation to other parcels which may or may not be a part of the Property, and (ii) the right to enter onto Lots and the Common Area to maintain the Lakes, ponds, creeks or water bodies as may be necessary to insure

that all such water bodies continue to provide a sufficient source of water to satisfy the irrigation needs described in this section. Nothing described in this section shall impose any obligation on Declarant to maintain the Lakes, ponds, creeks or water bodies located in the Common Area after such obligation has been assumed by the Association or a third party. Declarant shall have the right to transfer all or a portion of the rights retained by Declarant under this section to third parties.

11.8. Easement for Encroachment. Each Lot, and the Common Area are hereby granted an easement over all adjoining Lots and the Common Area for the purpose of accommodating any encroachment due to engineering errors, errors in original construction, settlement or shifting of a Building, or any other similar cause, and any encroachment due to Building overhang or projection. There shall be valid easements for the maintenance of such encroachments so long as they shall exist, and the rights and obligations of Owners shall not be altered in any way by such encroachment, settling or shifting; provided, however, that in no event shall a valid easement for encroachment be created in favor of an Owner or Owners if such encroachment occurred due to the willful act or acts with knowledge of such Owner or Owners. In the event a Structure on any Lot is partially or totally destroyed, and then repaired or rebuilt, the Owners of each Lot agree that minor unintentional encroachments over adjoining Lots shall be permitted, and that there shall be valid easements for the maintenance of such encroachments so long as they shall exist.

ARTICLE XII

ENFORCEMENT

12.1. Preventive Remedies. Declarant, the Association or any Owner may proceed at law or in equity to prevent the violation of this Declaration.

12.2. Enforcement Rights. Declarant, the Association or their duly authorized agents shall have the right, upon reasonable notice, at any time and from time to time following violation or breach of this Declaration, the Development Criteria or the Rules and Regulations (i) to enter upon any Lot to which such violation or breach exists and summarily to abate and remove, at the expense of the Owner thereof, any Structure, object or condition that may be or exist there contrary to the intent and meaning of this Declaration, the Development Criteria or the Rules and Regulations (including, without limitation, the care and maintenance of landscaping and lawns, care and maintenance of Improvements, removal of trash and debris, removal of dirt from streets resulting from construction activity and abatement of nuisances, removal or relocation of signs) and (ii) to institute a proceeding

at law or in equity against the Persons who have violated or attempted to violate any of the provisions of this Declaration, to enjoin or prevent them from doing so, to cause the violation to be remedied and to recover damages for the violation. If, pursuant to this Section, the duly authorized agents of Declarant or the Association enter upon any Lot for the purpose of abating or removing any violation or breach of this Declaration, neither the Person entering nor the Person directing the entry shall be deemed liable for any manner of trespass for such action, and the costs related to such abatement, including overhead, interest, late charges and costs of collection, shall become a Special Assessment upon such Lot and shall be secured by the Assessment lien provided for in this Declaration.

12.3. Cumulative Remedies. The remedies hereby specified are cumulative, and this specification shall not be deemed to preclude any aggrieved Person's resort to any other remedy provided hereunder or at law, in equity, or under any statute.

12.4. Failure to Enforce Not a Waiver of Rights. No delay or failure on the part of an aggrieved Person to invoke any available remedy in respect to a violation of any provision of this Declaration shall be held to be a waiver by the Person of (or an estoppel of that Person to assert) any right available to him upon recurrence or continuance of such violation or the occurrence of a different violation, nor shall there be imposed upon Declarant or the Association a duty to take any action to enforce this Declaration.

12.5. Assignment of Rights and Duties. Any and all of the rights, powers and reservations of Declarant herein contained (including, without limitation, the benefits of any reserved easements) may be specifically assigned by Declarant to any Person (including, without limitation, the Association), and upon any such Person consenting in writing to accept such assignment and assume such rights, powers and duties, such Person shall, to the extent of such assignment, have the same rights and powers and be subject to the same obligations and duties as are given to and assumed by Declarant herein. No conveyance by Declarant of any part of the Property or any interest therein shall be deemed to be, or construed as, an assignment of any right or power reserved herein, unless such right, power or reservation is specifically transferred or assigned by Declarant. The term Declarant as used herein includes all such assignees, who are specifically assigned such rights, powers and reservations, and their successors and assigns. Any assignment or appointment made under this Section shall be recorded in the Clerk's Office. From and after the date Declarant assigns to another Person any of its obligations under this Declaration, Declarant shall be relieved of such obligations and released from all liability for the performance or non-performance thereof.

12.6. Constructive Notice and Acceptance. Each Owner, Occupant or other Person, by acceptance of a deed conveying title to a part of the Property, or the execution of a contract for the purchase thereof, or the acceptance of a lease or license therefor, or the taking possession thereof, whether from Declarant or other Owner or lessee, shall for himself, his successors and assigns, be deemed to (i) accept such deed, contract, lease, license or possession upon and subject to each and all of the provisions of this Declaration, and (ii) covenant, to and with Declarant, and the other Owners to keep, observe, comply with and perform the requirements of this Declaration, whether or not any reference to this Declaration is contained in the instrument by which such Person acquired said interest. Notwithstanding the foregoing, Owners, lessees, licensees, and Occupants agree to refer to this Declaration in deeds, leases and licensees covering any portion of the Property and to make this Declaration binding upon all Owners, lessees, licensees and Occupants.

12.7. Waiver. Neither Declarant, the Design Review Board, the Association Board, the Association or any Member thereof, nor their successors or assigns shall be liable for damages to any Owner, lessee, licensee, or Occupant or a portion of the Property by reason of any mistake in judgment, negligence, nonfeasance, action or inaction in the administration of the provisions of this Declaration or for the enforcement or failure to enforce this Declaration or any part thereof; and every Owner, lessee, licensee or Occupant, by acquiring an interest in the Property, agrees that he will not bring any action or suit against Declarant, or the Design Review Board, or Association Board, or any member thereof, from time to time, to recover any such damages or to seek equitable relief on account of their enforcement or nonenforcement of this Declaration, provided that the waiver, limitation of liability and covenant not to sue shall not apply to acts of fraud or intentional misconduct by the parties listed above.

ARTICLE XIII

DURATION AND AMENDMENT

13.1. Duration of Protective Covenants. This Declaration shall continue and remain in full force and effect at all times with respect to the Property and each part thereof (subject, however, to the right to amend as provided for herein) for a period of thirty (30) years from the date of recordation of this Declaration in the Clerk's Office and shall be automatically extended thereafter for successive periods of ten (10) years each, subject to termination by an amendment as provided below. Notwithstanding the foregoing, Utility Easements reserved pursuant to Section 11.1 shall be perpetual.

13.2. **Amendment.** This Declaration may be amended before the formation of the Association, by Declarant for any reason; and after the formation of the Association (i) by Declarant without the consent of any other Owners in order to correct typographical errors, inconsistent references, scrivener's errors, grammatical mistakes, or incorrect or ambiguous punctuation for so long as Declarant's Class B membership continues or (ii) by a vote of the sum of: (A) two-thirds (2/3) of the Class A votes (including Class A votes held by Declarant), plus (B) the Class B votes (if any). Notwithstanding the foregoing, the provisions of Articles III and XI and Sections 4.3, 9.4, 7.6, 7.7, 10.8, 12.2 and this Section 13.2 may not be amended without the written consent of Declarant for so long as Declarant owns any portion of the Property and regardless of whether the Class B membership has terminated. In addition, Declarant, for so long as Declarant owns any portion of the Property and regardless of whether the Class B membership has terminated, shall have the right without the consent of any other Owners to amend this Declaration in order for this Declaration or the Property to comply with Laws now or hereafter enacted or to comply with any easements or agreements with third parties affecting the Property.

ARTICLE XIV

MISCELLANEOUS

14.1. **Variances.** Declarant shall have the right to grant reasonable written variances from provisions of this Declaration or any portion hereof, in order to overcome practical difficulties and to prevent unnecessary hardship in the application of the provisions contained herein; provided, however, that such variances shall not, in the opinion of the Design Review Board, materially injure or adversely impact any of the real property or Improvements within the Property. No variance granted pursuant to the authority herein reserved shall constitute a waiver of any provisions of this Declaration as applied to any other Person or property.

14.2. **Effect of Invalidation.** If any provision of this Declaration is held to be invalid or unenforceable by any court, the invalidity of such provision shall not affect the validity of the remaining provisions of this Declaration, which shall continue unimpaired, in full force and effect and shall be construed to the fullest extent practicable as if such invalid or unenforceable provisions had not been included in this Declaration.

14.3. **Notice.**

(a) To Declarant. Any and all notices or other communication required or permitted by this Declaration or by law to be served on or given to Declarant shall be in writing and

shall be deemed duly served and given when personally delivered, or in lieu of such personal service, when deposited in the United States mail, first class, postage prepaid, certified or registered mail, return receipt requested, addressed to Declarant as follows:

Stonehouse, Inc.
P. O. Box 3643
Williamsburg, Virginia 23187
Attention: President

(b) To Owners. Notice to any Owner or Occupant holding under any Owner or to any Mortgagee shall be deemed duly served when personally delivered to the Person to whom it is directed, or in lieu of such personal service, when deposited in the United States mail, first-class postage prepaid, certified or registered mail, return receipt requested, addressed to (i) the Owner at the address as shown in the applicable County or City tax records, or to such other address as designated by the Owner, in writing to Declarant and the Association; and (ii) to the Mortgagee at the address as designated by the Mortgagee in writing to the Association and Declarant.

(c) Change of Address. For the purposes of this paragraph, Declarant may change its address by a notice of change of address to each Owner within the Property and to each Mortgagee requesting such notice of whose address Declarant has been notified in writing.

14.4. Interpretation. This Declaration shall be interpreted for the mutual benefit and protection of the Owners and Occupants of the Property and in furtherance of the basic goals of this Declaration. Any discrepancy, conflict or ambiguity which may be found herein shall be resolved and determined by Declarant or the Association Board (if Declarant's rights hereunder have been assigned to the Association) and, in the absence of an adjudication by a court of competent jurisdiction to the contrary, such resolution and determination shall be final.

14.5. Captions. The table of contents, paragraph headings and captions appearing in this Declaration are inserted only as a matter of convenience and for reference and in no way limit or otherwise affect the scope, meaning or effect of any provisions of this Declaration.

14.6. Run with Land. The covenants and restrictions of this Declaration shall run with and bind the Property and the Owners and Occupants thereof.

14.7. Governing Law. This Declaration and rights of the Owners of the land within the Property shall be governed by the laws of the Commonwealth of Virginia.

IN WITNESS WHEREOF Declarant has caused this Declaration to be executed on its behalf by its duly authorized officer as of the date and year first above written.

STONEHOUSE INC.

By: James D. Franklin
Title: VICE PRESIDENT

STATE OF)
) SS
CITY/COUNTY OF)

The foregoing instrument was acknowledged before me this 12th day of October, 1994, by James D. Franklin as President of STONEHOUSE INC., a Virginia corporation, on behalf of the corporation.

My commission expires: 2/28/99.

Janice M. Thompson
Notary Public

EXHIBIT A TO DECLARATION OF COVENANTS, EASEMENTS AND RESTRICTIONS

Those certain parcels of land described as follows and generally as shown on Exhibit A-1 attached hereto:

"LaGrange #2" Tract, containing 223.89 acres by survey, being more particularly shown and described on plat of survey by Charles J. Kerns, Jr., C.L.S., dated August 26, 1988, a copy of which is attached hereto and recorded herewith, being the same property conveyed to the party of the first part by Sheldon Lumber Company, Incorporated, by deed dated April 19, 1987, recorded in Deed Book 393, page 285.

Being a portion of the property conveyed to Declarant by deed from Chesapeake Corporation recorded in James City County Deed Book 420 at page 712.

All that certain parcel of land in James City County, Virginia, containing by survey 4.75 acres as shown on a plat entitled, "SURVEY OF 4.75 ACRES FOR CONVEYANCE FROM SHELDON LUMBER COMPANY, INC., TO HOWARD V. CLAYTON, MARION P. CLAYTON, & JOHN H. CLAYTON," dated March 29, 1984, made by AES, a copy of which is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City County Deed Book 246, page 313.

Being the same property conveyed to Declarant by deed from Howard V. Clayton recorded in James City Deed Book 549 at page 59.

BOOK 0758 PAGE 0680

EXHIBIT A-1 TO
DECLARATION OF COVENA
EASEMENTS AND
RESTRICTIONS

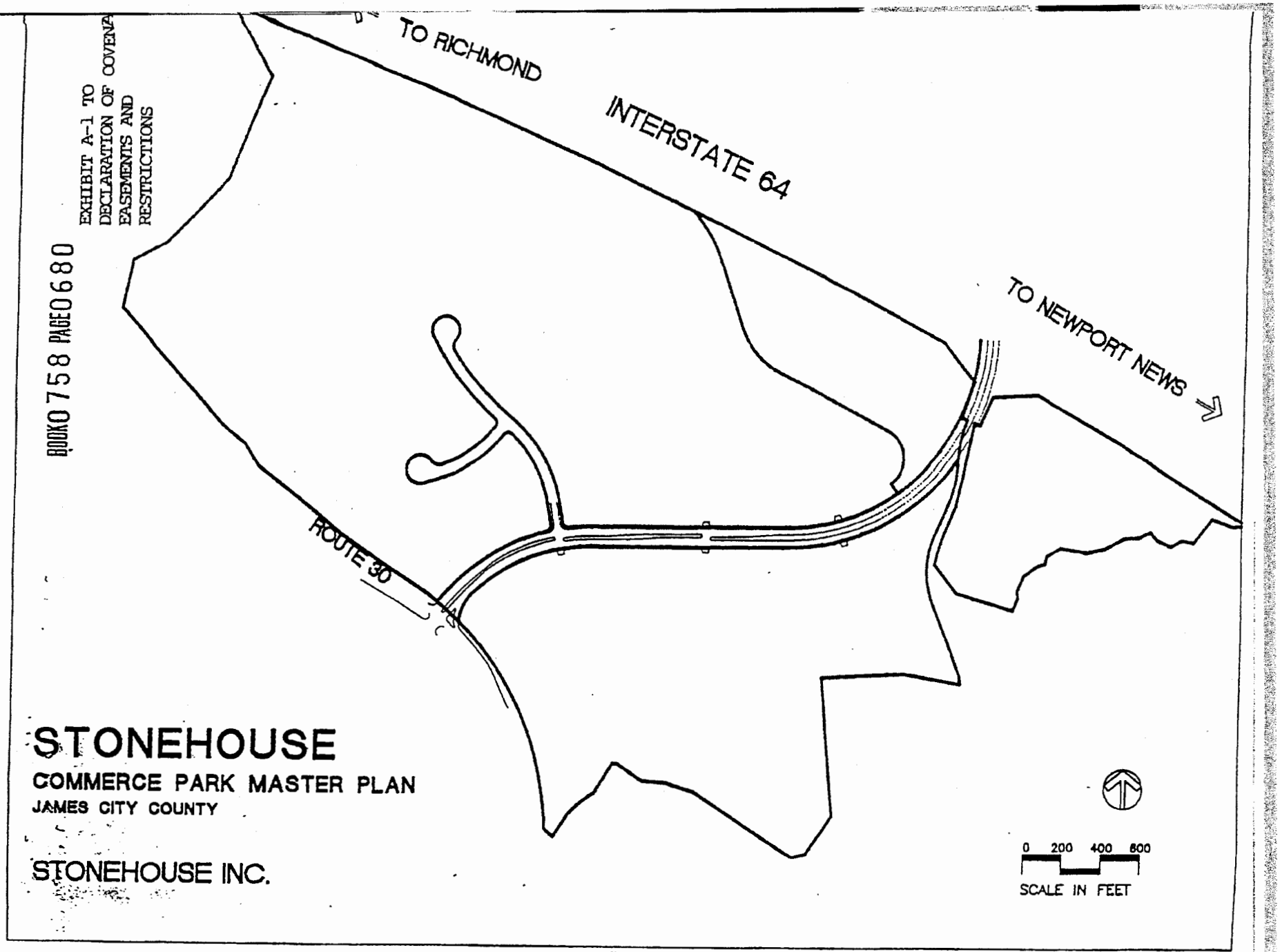

EXHIBIT B

Permitted Uses

The following uses shall be the "Permitted Uses" for the purpose of the Declaration to which this Exhibit is attached:

All uses permitted by right or with a special use permit if such a special use permit has been obtained under the Zoning Ordinance.

VIRGINIA: City of Williamsburg and County of James City, to-wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 12 day of October, 1995. This Decl Covenants was presented with certificate annexed and admitted to record at 2:50 o'clock
Teste: Helene S. Ward, Clerk
by Helene S. Ward
Deputy Clerk

PLAT RECORDED IN
P.B. NO. 62 PAGES 94, 95, 96

36-36

From this point forward the file is not certified. The list below details the documents that have been added to the file, the person that added the documents and the date they were added.

Name	Content	Date
Jo Anna Ripley	WC068, WC035, WC047	1/14/2014

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Printed On 10/17/2011 By JCCATTY

BOOK 0732 PAGE 0988

004986

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

WC035

WC068
WC035
WC011

THIS DECLARATION, made this 10TH day of March, 19 95, between Stonehouse, Inc., and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: Part of Tax Map (6-4) Parcel (1)(1), D.B. 383, Pg. 285 and Tax Map (12-1) Parcel 38, D.B. 589, Pg. 32 (Stonehouse Commerce Park), and James City County, Virginia, hereinafter referred to as the "COUNTY."

S/B 48

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the FACILITY to ensure that the FACILITY is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the FACILITY for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the FACILITY.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the FACILITY in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the FACILITY for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the FACILITY.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the FACILITY.

9. This DECLARATION shall be recorded in the County Land Records.

Printed On 10/17/2011 By JCCATTY

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 10th day of March, 1995.

COVENANTOR(S)

James D. Franklin
VICE PRESIDENT

ATTEST:

Stephen D. Jan

COVENANTOR(S)

ATTEST:

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF Williamsburg

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do certify that James D. Franklin, whose name is signed as such to the foregoing writing bearing date 10th day of March, 1995 this day sworn the same before me in my jurisdiction aforesaid.

GIVEN under my hand this 10th day of March, of 1995.

Janice M. Thompson
Notary Public

My Commission expires: February 28, 1999

Approved as to form:

Leo P. Rogers

0261U.Wpf
Revised 9/92

VIRGINIA: City of Williamsburg and County of [illegible]
In the [illegible] Court of the City [illegible] James City the 5 April 95. This Covenant [illegible] annexed and admitted [illegible] 12:47 o'clock
Teste: [illegible] Clerk
Deputy Clerk

From this point forward the file is not certified. The list below details the documents that have been added to the file, the person that added the documents and the date they were added.

Name	Content	Date
Jo Anna Ripley	WC035, WC047, WC068, WC085 OUT OF PARCEL DEED OF SALE	1/14/2014

292

Comments are as of 11/3/14

100011092 100013960

Tax Map #'s: 0440100028, 0530100025, 0530100023, 0530100024, 0530100010, 0530100020, 1310100019, 1310100008A, 1210100047, 1210100048, and 0640100001

no BMP WC086 no BMP no BMP no BMP no BMP no BMP no BMP

Prepared By
And Return To: Christina E. Hassan, Esquire
Hogan Lovells US LLP
Park Place II Ninth Floor
7930 Jones Branch Drive
McLean, VA 22102-3302

WC085
WC035
WC041
WC068

THIS DEED IS EXEMPT FROM RECORDATION AND GRANTOR TAXES PURSUANT TO VA. CODE § 58.1-811 A. (10) AND C (1)

To be re-recorded in the correct sequence.

DEED OF BARGAIN AND SALE

THIS DEED OF BARGAIN AND SALE, made this 2nd day of June 2010, between **GS STONEHOUSE GREEN LAND LLC**, a Delaware limited liability company, Grantor, and **GS STONEHOUSE GREEN LAND SUB 3 LLC**, a Delaware limited liability company, Grantee, whose address is 50 North Water Street, South Norwalk, Connecticut 06854.

WITNESSETH:

That for and in consideration of the sum of Ten and 00/100 Dollars ($10.00), cash in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, the said Grantor does grant and convey, with **SPECIAL WARRANTY** unto the Grantee, in fee simple, the following described property, to-wit:

See Exhibit A attached hereto and incorporated herein.

Together with all the improvements thereon and appurtenances thereto and all right, title and interest of Grantor in and to the land lying in the bed of any streets, roads and highways adjacent to said property.

To have and to hold the above-described property, together with each and every title, right, privilege, appurtenance and advantage thereunto belong, or in anywise appertaining, unto

WC068
WC035
WC047
WC085

and for the proper use only, benefit and behoove forever of Grantee, its successors and assigns, in fee simple forever.

This conveyance is made subject to the following (a) conditions, restrictions, encroachments, protrusions, covenants, proffers and easements of record or apparent on the ground affecting the property conveyed hereby; (b) rights of riparian landowners to the use and continued flow of the rivers, streams and creeks running over, upon, adjacent to and through the Property; and (c) the terms of applicable zoning ordinances and proffers.

Grantor, for itself and its successors and assigns, does hereby covenant with the said Grantee, and its successors and assigns, to warrant specially the property hereby granted and conveyed, and to execute such further assurances of the said property as may be requisite.

REMAINDER OF PAGE INTENTIONALLY BLANK

WITNESS the following signature and seal:

GS STONEHOUSE GREEN LAND LLC, a Delaware limited liability company

By:_____(SEAL)
Barry P. Marcus, Senior Vice President

STATE OF Connecticut
CITY/COUNTY OF Norwalk / Fairfield

The foregoing instrument was acknowledged before me this 2 day of June, 2010, by Barry P. Marcus, Senior Vice President, of GS Stonehouse Green Land LLC on behalf of the company.

_____
NOTARY PUBLIC

My Commission Expires:_____
Notary Registration No. :_____

Jennifer Montanaro
Notary Public
Fairfield Cty. CT
My Commission Expires 5-31-13

Exhibit A
Property Description

LAND BAY 1

Tax Parcel ID No.: 0440100028

13.1105 acres shown as Parcel E on a "Boundary Line Adjustment Plat of Property Owned by Stonehouse, Inc. and Golf Trust of America, L.P." made by Langley and McDonald, P.C., dated 5/5/97, recorded in Plat Book 66, Pages 89-93.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

LAND BAY 8

Parcel I:

Tax Parcel ID No. 0530100025

That certain property shown as "Parcel R-5" on that certain "SUBDIVISION PLAT SHOWING STONEHOUSE GLEN SECTION 1 & 2 AND RIGHT OF WAY OF FIELDSTONE PARKWAY BEING A SUBDIVISION OF THE PROPERTY OF FIELDSTONE INVESTMENT, LLC AND STONEHOUSE GLEN, LLC" dated May 31, 2006, prepared by LandMark Design Group, recorded in the Clerk's Office for the City of Williamsburg and the County of James City as Instrument No. 060016179.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

Parcel II:

Tax Parcel ID Nos. 0530100023 and 0530100024

All that property shown as "BMP #6" and "Parcel R-4" on that certain plat entitled "SUBDIVISON PLAT SHOWING STONEHOUSE GLEN SECTION 1 & 2 AND RIGHT OF WAY OF FIELDSTONE PARKWAY BEING A SUBDIVISION OF THE PROPERTY OF FIELDSTONE INVESTMENT, LLC AND STONEHOUSE GLEN, LLC" dated May 31, 2006, prepared by LandMark Design Group, recorded in the Clerk's Office for the City of Williamsburg and the County of James City as Instrument Number 060016179. Together with all the rights, title and interest in and to that certain easement conveyed to Fieldstone Investment, LLC under that certain Benefit Pathway and Utility Easement dated May 15, 2006, recorded in the aforementioned Clerk's Office as Document No. 060012689.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

LAND BAY 14

Parcel I:

Tax Parcel ID No. 0530100010

Section III-C containing 16.0620 acres, all as shown on "Subdivision Plat of Stonehouse Development Area One, Phase 1, Section I-B, Section II-A, Section III-C, Being a Subdivision of Properties Owned by Stonehouse Limited Liability Company and Stonehouse, Inc.", made by Langley and McDonald, Inc., dated November 19, 1999, last revised December 9, 1999, recorded in Plat Book 75, Pages 93-97.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

Parcel II:

Tax Parcel ID No. 0530100020

All that certain piece, parcel or tract of land, situate, lying and being in Stonehouse Magisterial District, James City County, Virginia, and being more particularly shown and described on that certain plat entitled "Composite Plat Showing a Portion of Parcel A, Stonehouse Development Company, L.L.C., prepared by G.T. Wilson, Jr., L.S., dated January 14, 2004 and revised March 18, 2004, a copy of which is recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City as Instrument No. 040008576, which plat was recorded with that certain Deed of Bargain and Sale from Stonehouse Development Company, LLC, a Virginia limited liability company, to 2J Investments, LLC, a Virginia limited liability company, dated March 16, 2004 and recorded March 25, 2004 in the aforesaid Clerk's Office as Instrument No. 040008576, and to which plat reference is hereby made for a more particular description of such property.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC by Special Warranty Deed dated December 15, 2006 from 2J Investments, L.L.C., which deed is recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City as Instrument No. 060030587.

TRACT 9

Tax Parcel ID No.: 1310100019

ALL THAT certain tract of land lying in Stonehouse District, James City County, Virginia, containing 48.21 acres, more or less, and being in the residue of the "Tankard" Tract, known among the tax recorded for said county as Tax Map 13-1 (1-19). Reference is made to that plat of survey recorded in the Clerk's Office, Circuit Court, James City County, Virginia, in Plat Book 50, Page 14, and Deed recorded in Deed Book 420, Page 712, that plat recorded in Plat Book 88, Pages 43-44, and that Deed recorded as Instrument Number 020027159.

Tax Parcel ID No.: 1310100008A

Parcel I: ALL THAT certain tract or parcel of land situate, lying and being in Stonehouse District, James City County, Virginia, known and designated as "35.0 Acres, +/-" on a certain plat entitled "Survey of 35 Acres +/- for Conveyance to: Jackie L., Gary M. & Steve L. Massie from: Leon Carr Avery & Maxie G. Avery", made by AES, a professional corporation, dated March 11, 1982, which plat is recorded in the Clerk's Office, Circuit Court, James City County, Virginia, in Plat Book 37, Page 24.

Parcel II: ALL THAT certain tract or parcel of land, situate, lying and being in Stonehouse District, James City County, Virginia, known and designated as "7.31 acres", on plat entitled "Boundary Survey of 7.31 Acres Located on the North Line of Route 30", made by AES, a professional corporation, dated December 17, 1984, and described by metes and bounds in that certain deed recorded in the Clerk's Office aforesaid in Deed Book 262, Page 455.

Portions of the property being further described as follows:

Legal Description for Massie Tract 1:

All that certain piece or parcel of land situated in James City County, Virginia containing 48.00 acres more or less, designated as Tax Parcel #1310100019 by the James City County Assessors office and being shown as Tract I on a plat titled SURVEY OF PROPERTIES STANDING IN THE NAME OF FIELDSTONE INVESTMENT, LLC AS DESIGNATED BY PARCEL IDENTIFICATION NUMBERS: PIN: 1310100008A & PIN: 1310100019 dated 10-9-06 and prepared by LandTech Resources, Williamsburg, VA. and being more particularly described as follows:

Beginning at the most southerly corner of Lot 10, Section 2 of the Sand Hill Subdivision, said point being marked by an iron pipe; thence from said Point Of Beginning following the line common with the property herein described and Lot 10, Lot 9 and Lot 8, Section 2 of the Sand Hill Subdivision N19°49'17"E, 441.90 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Kinney and Johnson, trustees N24°38'06"E, 677.11 feet to an iron rod at the southerly right of way line of Sand Hill Road; thence following the southerly right of way line of Sand Hill Road the following courses: along a curve to the left having a radius of 159.00 feet an arc length of 58.63 feet, a chord distance of 58.30 feet, and a chord bearing of N89°29'12"E to an iron rod; thence N78°55'23"E, 104.77 feet to an iron rod at the intersection of southerly right of way line of Sand Hill Road and the south westerly right of way line of Interstate Route 64; thence following the south westerly right of way line of Interstate Route 64 the following courses: along a curve to the right having a radius of 28,497.89 feet, an arc length of 2,005.99 feet, a chord distance of 2,005.57 feet, and a chord bearing of S40°58'22"E to an iron rod; thence S13°04'03'W, 62.18 feet to an iron rod; thence S59°46'58"E, 136.50 feet to an iron rod; thence along a curve to the right having a radius of 28,497.89 feet an arc length of 573.33 feet, a chord distance of 573.32 feet and a chord bearing of S38°02'47"E to an iron rod; thence leaving the south westerly right of way line of Interstate Route 64 and following the line common with the property herein described and the property now or formerly of Altizer the following courses: S32°01'54"W, 178.80 feet to an iron rod; thence S57°20'49"W, 161.50 feet to an iron T-bar; thence following the line common with the property herein described and the property now or formerly of Milton & Lee, Reilly and Jackson N56°00'33"W, 785.03 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Fieldstone Investment, LLC, said line being marked by painted and marked trees the following courses: N56°07'41"W, 1,326.91 feet to an iron pipe; thence S68°15'24"W, 259.77 feet to an iron T-bar; thence N86°43'56"W, 194.00 feet to a tree; thence N68°06'56"W, 179.71 feet to an iron T-bar; thence N72°18'56'W, 179.00 feet to an iron T-bar, thence N73°43'29"W, 159.47 feet to a Walnut Tree; thence following the line common with the property herein described and the property now or formerly of Mereau N66°08'23"E, 134.24 feet to a Hickory Tree; thence following the line common with the property herein described and the property now or formerly of Burrell the following courses: N69°17'01"E, 91.38 feet to an iron rod; thence S77°00'33"E, 236,30 feet to an iron pipe; thence following the line common with the property herein described and Lot 10, Section 2 of the Sand Hill Subdivision

S84°02'51"E, 105.35 feet and returning to the point of beginning.

Legal Description for Massie Tract 2:

All that certain piece or parcel of land situated in James City County, Virginia containing 41.95 acres more or less, designated as Tax Parcel #1310100008A by the James City County Assessors office and being shown as Tract 2 on a plat titled SURVEY OF PROPERTIES STANDING IN THE NAME OF FIELDSTONE INVESTMENT, LLC AS DESIGNATED BY PARCEL IDENTIFICATION NUMBERS: PIN: 1310100008A & PIN; 1310100019 dated 10-9-06 and prepared by LandTech Resources, Williamsburg, VA. and being more particularly described as follows:

Commencing at a Point on the northerly right of way line of Rochambeau Drive at its intersection with the easterly right of way line of Sand Hill Road; thence following the northerly right of way line of Rochambeau Drive in a south easterly direction approximately 823' feet to an iron pipe at the common corner of the property herein described and the property now or formerly of Bradby, said point being The True Point Of Beginning; thence from said Point Of Beginning, leaving the northerly right of way line of Rochambeau Drive and following the line common with the property herein described and the property now or formerly of Bradby N24°34'56"E, 537.26 feet to an iron pipe; thence N22°32'19'W, 165.63 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Bradby, Lapham and Carroll N70°42'20"W, 394.06 feet to an iron rod; thence following the line common with the property herein described and the property now or formerly of Sligh N25°11'45"E, 184.04 feet to a Walnut free; thence following the line common with the property herein described and the Property now or formerly of Fieldstone Investment, LLC, said line being marked by painted and marked trees the following courses: S73°43'29"E, 159.47 feet to an iron T-bar; thence S72°18'56"E, 179.00 feet to an iron T-bar; thence S68°06'56"E, 179.71 feet to tree; thence S86°43'56"E, 194.00 feet to an iron T-bar; thence N68°15'24"E, 259.77 feet to an iron pipe; thence S56°07'41"E., 1,326.91 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Jackson the following two courses: S18°47'32"W, 447.68 feet to an iron pipe; thence S22°59'39"W, 531.17 feet to an iron pipe; on the northerly right of way line of Rochambeau Drive thence following the northerly right of way line of Rochambeau Drive the following courses: N62°43'32"W, 141.29 feet; thence following the centerline of a stream along a tie line course of N09°03'49"W, 297.36 feet to the intersection of two streams; thence following a tie line course of S52°28'21"W, 264.72 feet to a point; thence N62'43'32'W, 1,304.46 feet and returning to the point of beginning.

TRACT 13

Tax Parcel ID Nos.: 1210100047, 1210100048, and 0640100001

"LAGRANGE" Tract, containing (i) 223.89 acres as depicted on that plat of survey dated August 26, 1988 made by Charles J. Kerns, Jr., L.S., recorded in Plat Book 50, Page 11, as conveyed to

Chesapeake Corporation by Sheldon Lumber Company, Incorporated, dated April 29. 1987, recorded in Deed Book 393, Page 285, and (ii) 4.75 acres, depicted as Parcel B on plat of survey dated 3/29/84 made by AES, recorded in Deed Book 246, page 313, as conveyed to Stonehouse Inc. by deed from Howard V. Clayton and Marion P. Clayton dated January 28, 1992, recorded Deed Book 549, Page 59. LESS AND EXCEPT the following described property:

1. 15.00 acres depicted on "Plat of Section A of Stonehouse Commerce Park at Stonehouse for Stonehouse, Inc." dated 10/10/95, made by Langley and McDonald, P.C., recorded in Plat Book 62, Pages 94-96, as conveyed to Amoco/Enron Solar by deed dated October 12, 1995, recorded in Deed Book 758, Page 721;

2. 11.1906 acres, depicted as Parcel A on "Plat of Section A of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." dated 10/10/95, made by Langley and McDonald, P.C. recorded in Plat Book 62, Pages 94-96, as conveyed to The Industrial Development Authority of James City County by deed dated September 30, 1996 recorded in Deed Book 809, Page 728;

3. 4.600 acres, depicted as Stonehouse Commerce Park, Section B, Parcel A on that plat entitled "Plat of Section B of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 1/23/98, recorded in Plat Book 68, Pages 60-61, as conveyed to The Barre Company, L.L.C., by deed dated March 3, 1998, recorded as Document No. 98-4099;

4. 6.245 acres, as depicted on "Plat of Boundary Line Adjustment Stonehouse Commerce Park Between Avid Realty, L.L.C. and Stonehouse Inc." dated May 2, 2002, made by AES Consulting Engineers, recorded in the Clerk's Office aforesaid in Plat Book 87, Page 89, of which 3.100 acres, depicted as Stonehouse Commerce Park, Section B, Parcel B on that plat entitled "Plat of Section B of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 1/23/98, recorded in Plat Book 68, Pages 60-61, was conveyed to Avid Realty, L.L.C., by deed from Stonehouse Inc., dated June 23, 1998, recorded as Document No. 98-11721;

5. 74.3712 acres, depicted as "Stonehouse Commerce Park, Section C, Parcel A" on the plat entitled "Plat of Section C of Stonehouse Commerce Park at Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 3/22/99, recorded in Plat Book 73, Pages 38-39, as conveyed to Wachovia Capital Investments, Inc., by deed from Stonehouse Inc. dated May 17, 1999, recorded as Document No. 99-11248;

6. 4.1278 acres, depicted as "Stonehouse Commerce Park, New Parcel B-1, Section C" on the plat entitled "Resubdivision Plat of Section C, Parcel B of Stonehouse Commerce Park at Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Landmark Design Group, dated 4/5/00, recorded in Plat Book 77, Pages 28-29, as conveyed to Friendship Partnership, LLC. by deed from Stonehouse Inc. dated April 6, 2000, recorded as document No. 00-7666;

7. Parcel A-2B containing 4151 S.F., Parcel A-2A containing 2750 S.F. and Parcel A-lA containing 2050 S.F., all as depicted on "Resubdivision Plat of Section A, Parcel A of Stonehouse Commerce Park at Stonehouse for the Industrial Development Authority of the County of James City, Virginia"

Plats

PB 50 | 11

62 | 94-96

68 / 60-61

78/4-5

#030039997

030010861

060009197

made by Landmark Design Group, dated March 17, 2000, last revised June 23, 2000, recorded in Plat Book 78, Pages 4-5, and as conveyed to The Industrial Development Authority of James City County by three deeds from Stonehouse Inc. dated June 26, 2000, June 23, 2000 and June 23, 2000, recorded as Document Numbers 00-12706,00-12707 and 00-12708, respectively;

8. All that certain lot, piece or parcel of land with all improvements thereon and appurtenances thereunto belonging, situate, lying and being in the County of James City, Virginia, known and designated as "New Parcel," consisting of 10.3± acres, more or less, as shown on that certain plat entitled, "SUBDIVISION OF THE PROPERTY OF STONEHOUSE AT WILLIAMSBURG, LLC AT STONEHOUSE COMMERCE PARK STONEHOTJSE DISTRICT, JAMES CITY COUNTY, VIRGINIA, made by Landmark Design Group, dated October 24, 2003, and revised October 28, 2003, and recorded in the Clerk's Office of the Circuit Court for the County of James City, Virginia as Instrument No. 030039997, to which reference is here made;

9. All that certain lot, piece or parcel of land with all improvements thereon and appurtenances thereunto belonging, situate, lying and being in the County of James City, Virginia, known and designated as "Parcel A 24,157 S.F., .05689 AC." on that certain plat entitled, "SUBDIVISION PLAT OF PARCEL A & PARCEL B SECTION D, STONEHOUSE COMMERCE PARK BEING A PORTION OF THE PROPERTY OF COMMERCE PARK AT STONEHOUSE, LLC", made by Landmark Design Group, dated September 26, 2005, attached hereto as Exhibit A-I, and the easement rights to be conveyed therewith as noted on the aforementioned plat;

10. All that property shown as "NEW RIGHT OF WAY" on that certain plat entitled "PLAT SHOWING RIGHT OF WAY BEING THE EXTENSION OF LAGRANGE PARKWAY AND RE-ALIGNMENT OF A PORTION OF STATE ROUTE 600", dated July 8, 2002, last revised January 16, 2003, prepared by LandMark Design Group, recorded in the Clerk's Office for the City of Williamsburg and the County of James City as Instrument Number 030010861.

11. That certain lot or parcel of land located in the Stonehouse District of James City County, Virginia shown and set out as "Parcel B, 100,898 S. F., 2.3163 AC." on the plat of subdivision entitled "Subdivision Plat of Parcel A & Parcel B, Section D, Stonehouse Commerce Park Being a Portion of the Property of Commerce Park at Stonehouse, LLC", prepared by Landmark Design Group and dated February 16, 2006, consisting of three sheets, which plat of subdivision is recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City as Instrument No. 060009197.

Together with the reservation of easements set forth in the following Deeds of Conveyance: Deed Book 758 Page 721, Deed Book 809 Page 728, Document No. 980004099, Document No. 980011721, Document No. 990011248; Document No. 00007666; and Document No. 020022341.

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 8 July 2010
at 10:45 AM/PM. The taxes imposed by Virginia Code Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 7 June 2010
at 3:30 AM/PM. The taxes imposed by Virginia Code Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk

100011093

Tax Map #'s: 0440100028, 0530100025, 0530100023, 0530100024, 0530100010, 0530100020, 1310100019, 1310100008A, 1210100047, 1210100048, and 0640100001

Prepared By
And Return To: Christina E. Hassan, Esquire
Hogan Lovells US LLP
Park Place II Ninth Floor
7930 Jones Branch Drive
McLean, VA 22102-3302

WC035

THIS DEED IS EXEMPT FROM RECORDATION AND GRANTOR TAXES PURSUANT TO VA. CODE § 58.1-811 A. (10) AND C (1)

DEED OF BARGAIN AND SALE

THIS DEED OF BARGAIN AND SALE, made this 2nd day of June 2010, between **GS STONEHOUSE GREEN LAND SUB LLC**, a Delaware limited liability company, Grantor, and **GS STONEHOUSE GREEN LAND LLC**, a Delaware limited liability company, Grantee, whose address is 50 North Water Street, South Norwalk, Connecticut 06854.

WITNESSETH:

That for and in consideration of the sum of Ten and 00/100 Dollars ($10.00), cash in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, the said Grantor does grant and convey, with **SPECIAL WARRANTY** unto the Grantee in fee simple, the following described property, to-wit:

See Exhibit A attached hereto and incorporated herein.

Together with all the improvements thereon and appurtenances thereto and all right, title and interest of Grantor in and to the land lying in the bed of any streets, roads and highways adjacent to said property.

To have and to hold the above-described property, together with each and every title, right, privilege, appurtenance and advantage thereunto belong, or in anywise appertaining, unto and for the proper use only, benefit and behoove forever of Grantee, its successors and assigns, in fee simple forever.

This conveyance is made subject to the following (a) conditions, restrictions, encroachments, protrusions, covenants, proffers and easements of record or apparent on the ground affecting the property conveyed hereby; (b) rights of riparian landowners to the use and continued flow of the rivers, streams and creeks running over, upon, adjacent to and through the Property; and (c) the terms of applicable zoning ordinances and proffers.

Grantor, for itself and its successors and assigns, does hereby covenant with the said Grantee, and its successors and assigns, to warrant specially the property hereby granted and conveyed, and to execute such further assurances of the said property as may be requisite.

REMAINDER OF PAGE INTENTIONALLY BLANK

WITNESS the following signature and seal:

GS STONEHOUSE GREEN LAND SUB LLC, a Delaware limited liability company

By:_____(SEAL)
Barry P. Marcus, Senior Vice President

STATE OF Connecticut
CITY/COUNTY OF Norwalk / Fairfield

The foregoing instrument was acknowledged before me this 2 day of June, 2010, by Barry P. Marcus, Senior Vice President, of GS Stonehouse Green Land Sub LLC on behalf of the company.

_____
NOTARY PUBLIC

My Commission Expires:_____
Notary Registration No. :_____

Jennifer Montanaro
Notary Public
Fairfield Cty. CT
My Commission Expires 5-31-13

JENNIFER MONTANARO NOTARY PUBLIC CONNECTICUT

\\DE - 083526/000049 - 457037 v2

Exhibit A
Property Description

LAND BAY 1

Tax Parcel ID No.: 0440100028

13.1105 acres shown as Parcel E on a "Boundary Line Adjustment Plat of Property Owned by Stonehouse, Inc. and Golf Trust of America, L.P." made by Langley and McDonald, P.C., dated 5/5/97, recorded in Plat Book 66, Pages 89-93.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

LAND BAY 8

Parcel I:

Tax Parcel ID No. 0530100025

That certain property shown as "Parcel R-5" on that certain "SUBDIVISION PLAT SHOWING STONEHOUSE GLEN SECTION 1 & 2 AND RIGHT OF WAY OF FIELDSTONE PARKWAY BEING A SUBDIVISION OF THE PROPERTY OF FIELDSTONE INVESTMENT, LLC AND STONEHOUSE GLEN, LLC" dated May 31, 2006, prepared by LandMark Design Group, recorded in the Clerk's Office for the City of Williamsburg and the County of James City as Instrument No. 060016179.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

Parcel II:

Tax Parcel ID Nos. 0530100023 and 0530100024

All that property shown as "BMP #6" and "Parcel R-4" on that certain plat entitled "SUBDIVISON PLAT SHOWING STONEHOUSE GLEN SECTION 1 & 2 AND RIGHT OF WAY OF FIELDSTONE PARKWAY BEING A SUBDIVISION OF THE PROPERTY OF FIELDSTONE INVESTMENT, LLC AND STONEHOUSE GLEN, LLC" dated May 31, 2006, prepared by LandMark Design Group, recorded in the Clerk's Office for the City of Williamsburg and the County of James City as Instrument Number 060016179. Together with all the rights, title and interest in and to that certain easement conveyed to Fieldstone Investment, LLC under that certain Benefit Pathway and Utility Easement dated May 15, 2006, recorded in the aforementioned Clerk's Office as Document No. 060012689.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

LAND BAY 14

Parcel I:

Tax Parcel ID No. 0530100010

Section III-C containing 16.0620 acres, all as shown on "Subdivision Plat of Stonehouse Development Area One, Phase 1, Section I-B, Section II-A, Section III-C, Being a Subdivision of Properties Owned by Stonehouse Limited Liability Company and Stonehouse, Inc.", made by Langley and McDonald, Inc., dated November 19, 1999, last revised December 9, 1999, recorded in Plat Book 75, Pages 93-97.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC, by Special Warranty Deed dated October 31, 2006 from Stonehouse Capital, LLC, Commerce Park at Stonehouse, LLC, Six Hundred North, LLC, Fairmont Investment, LLC, Mount Laurel, LLC, Stonehouse Glen, LLC, Fieldstone Investment, LLC, Tymar Capital, LLC, Cimarron Capital, LLC and JTL Stonewill Joint Venture, LLC, which deed is recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060027006.

Parcel II:

Tax Parcel ID No. 0530100020

All that certain piece, parcel or tract of land, situate, lying and being in Stonehouse Magisterial District, James City County, Virginia, and being more particularly shown and described on that certain plat entitled "Composite Plat Showing a Portion of Parcel A, Stonehouse Development Company, L.L.C., prepared by G.T. Wilson, Jr., L.S., dated January 14, 2004 and revised March 18, 2004, a copy of which is recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City as Instrument No. 040008576, which plat was recorded with that certain Deed of Bargain and Sale from Stonehouse Development Company, LLC, a Virginia limited liability company, to 2J Investments, LLC, a Virginia limited liability company, dated March 16, 2004 and recorded March 25, 2004 in the aforesaid Clerk's Office as Instrument No. 040008576, and to which plat reference is hereby made for a more particular description of such property.

Being a portion of the property conveyed to GS Stonehouse Green Land Sub, LLC by Special Warranty Deed dated December 15, 2006 from 2J Investments, L.L.C., which deed is recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City as Instrument No. 060030587.

TRACT 9

Tax Parcel ID No.: 1310100019

ALL THAT certain tract of land lying in Stonehouse District, James City County, Virginia, containing 48.21 acres, more or less, and being in the residue of the "Tankard" Tract, known among the tax recorded for said county as Tax Map 13-1 (1-19). Reference is made to that plat of survey recorded in the Clerk's Office, Circuit Court, James City County, Virginia, in Plat Book 50, Page 14, and Deed recorded in Deed Book 420, Page 712, that plat recorded in Plat Book 88, Pages 43-44, and that Deed recorded as Instrument Number 020027159.

Tax Parcel ID No.: 1310100008A

Parcel I: ALL THAT certain tract or parcel of land situate, lying and being in Stonehouse District, James City County, Virginia, known and designated as "35.0 Acres, +/-" on a certain plat entitled "Survey of 35 Acres +/- for Conveyance to: Jackie L., Gary M. & Steve L. Massie from: Leon Carr Avery & Maxie G. Avery", made by AES, a professional corporation, dated March 11, 1982, which plat is recorded in the Clerk's Office, Circuit Court, James City County, Virginia, in Plat Book 37, Page 24.

Parcel II: ALL THAT certain tract or parcel of land, situate, lying and being in Stonehouse District, James City County, Virginia, known and designated as "7.31 acres", on plat entitled "Boundary Survey of 7.31 Acres Located on the North Line of Route 30", made by AES, a professional corporation, dated December 17, 1984, and described by metes and bounds in that certain deed recorded in the Clerk's Office aforesaid in Deed Book 262, Page 455.

Portions of the property being further described as follows:

Legal Description for Massie Tract 1:

All that certain piece or parcel of land situated in James City County, Virginia containing 48.00 acres more or less, designated as Tax Parcel #1310100019 by the James City County Assessors office and being shown as Tract I on a plat titled SURVEY OF PROPERTIES STANDING IN THE NAME OF FIELDSTONE INVESTMENT, LLC AS DESIGNATED BY PARCEL IDENTIFICATION NUMBERS: PIN: 1310100008A & PIN: 1310100019 dated 10-9-06 and prepared by LandTech Resources, Williamsburg, VA. and being more particularly described as follows:

Beginning at the most southerly corner of Lot 10, Section 2 of the Sand Hill Subdivision, said point being marked by an iron pipe; thence from said Point Of Beginning following the line common with the property herein described and Lot 10, Lot 9 and Lot 8, Section 2 of the Sand Hill Subdivision N19°49'17"E, 441.90 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Kinney and Johnson, trustees N24°38'06"E, 677.11 feet to an iron rod at the southerly right of way line of Sand Hill Road; thence following the southerly right of way line of Sand Hill Road the following courses: along a curve to the left having a radius of 159.00 feet an arc length of 58.63 feet, a chord distance of 58.30 feet, and a chord bearing of N89°29'12"E to an iron rod; thence N78°55'23"E, 104.77 feet to an iron rod at the intersection of southerly right of way line of Sand Hill Road and the south westerly right of way line of Interstate Route 64; thence following the south westerly right of way line of Interstate Route 64 the following courses: along a curve to the right having a radius of 28,497.89 feet, an arc length of 2,005.99 feet, a chord distance of 2,005.57 feet, and a chord bearing of S40°58'22"E to an iron rod; thence S13°04'03'W, 62.18 feet to an iron rod; thence S59°46'58"E, 136.50 feet to an iron rod; thence along a curve to the right having a radius of 28,497.89 feet an arc length of 573.33 feet, a chord distance of 573.32 feet and a chord bearing of S38°02'47"E to an iron rod; thence leaving the south westerly right of way line of Interstate Route 64 and following the line common with the property herein described and the property now or formerly of Altizer the following courses: S32°01'54"W, 178.80 feet to an iron rod; thence S57°20'49"W, 161.50 feet to an iron T-bar; thence following the line common with the property herein described and the property now or formerly of Milton & Lee, Reilly and Jackson N56°00'33"W, 785.03 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Fieldstone Investment, LLC, said line being marked by painted and marked trees the following courses: N56°07'41"W, 1,326.91 feet to an iron pipe; thence S68°15'24"W, 259.77 feet to an iron T-bar; thence N86°43'56"W, 194.00 feet to a tree; thence N68°06'56"W, 179.71 feet to an iron T-bar; thence N72°18'56'W, 179.00 feet to an iron T-bar, thence N73°43'29"W, 159.47 feet to a Walnut Tree; thence following the line common with the property herein described and the property now or formerly of Mereau N66°08'23"E, 134.24 feet to a Hickory Tree; thence following the line common with the property herein described and the property now or formerly of Burrell the following courses: N69°17'01"E, 91.38 feet to an iron rod; thence S77°00'33"E, 236,30 feet to an iron pipe; thence following the line common with the property herein described and Lot 10, Section 2 of the Sand Hill Subdivision

S84°02'51"E, 105.35 feet and returning to the point of beginning.

Legal Description for Massie Tract 2:

All that certain piece or parcel of land situated in James City County, Virginia containing 41.95 acres more or less, designated as Tax Parcel #1310100008A by the James City County Assessors office and being shown as Tract 2 on a plat titled SURVEY OF PROPERTIES STANDING IN THE NAME OF FIELDSTONE INVESTMENT, LLC AS DESIGNATED BY PARCEL IDENTIFICATION NUMBERS: PIN: 1310100008A & PIN; 1310100019 dated 10-9-06 and prepared by LandTech Resources, Williamsburg, VA. and being more particularly described as follows:

Commencing at a Point on the northerly right of way line of Rochambeau Drive at its intersection with the easterly right of way line of Sand Hill Road; thence following the northerly right of way line of Rochambeau Drive in a south easterly direction approximately 823' feet to an iron pipe at the common corner of the property herein described and the property now or formerly of Bradby, said point being The True Point Of Beginning; thence from said Point Of Beginning, leaving the northerly right of way line of Rochambeau Drive and following the line common with the property herein described and the property now or formerly of Bradby N24°34'56"E, 537.26 feet to an iron pipe; thence N22°32'19'W, 165.63 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Bradby, Lapham and Carroll N70°42'20"W, 394.06 feet to an iron rod; thence following the line common with the property herein described and the property now or formerly of Sligh N25°11'45"E, 184.04 feet to a Walnut free; thence following the line common with the property herein described and the Property now or formerly of Fieldstone Investment, LLC, said line being marked by painted and marked trees the following courses: S73°43'29"E, 159.47 feet to an iron T-bar; thence S72°18'56"E, 179.00 feet to an iron T-bar; thence S68°06'56"E, 179.71 feet to tree; thence S86°43'56"E, 194.00 feet to an iron T-bar; thence N68°15'24"E, 259.77 feet to an iron pipe; thence S56°07'41"E., 1,326.91 feet to an iron pipe; thence following the line common with the property herein described and the property now or formerly of Jackson the following two courses: S18°47'32"W, 447.68 feet to an iron pipe; thence S22°59'39"W, 531.17 feet to an iron pipe; on the northerly right of way line of Rochambeau Drive thence following the northerly right of way line of Rochambeau Drive the following courses: N62°43'32"W, 141.29 feet; thence following the centerline of a stream along a tie line course of N09°03'49"W, 297.36 feet to the intersection of two streams; thence following a tie line course of S52°28'21"W, 264.72 feet to a point; thence N62'43'32'W, 1,304.46 feet and returning to the point of beginning.

TRACT 13

Tax Parcel ID Nos.: 1210100047, 1210100048, and 0640100001

"LAGRANGE" Tract, containing (i) 223.89 acres as depicted on that plat of survey dated August 26, 1988 made by Charles J. Kerns, Jr., L.S., recorded in Plat Book 50, Page 11, as conveyed to

Chesapeake Corporation by Sheldon Lumber Company, Incorporated, dated April 29. 1987, recorded in Deed Book 393, Page 285, and (ii) 4.75 acres, depicted as Parcel B on plat of survey dated 3/29/84 made by AES, recorded in Deed Book 246, page 313, as conveyed to Stonehouse Inc. by deed from Howard V. Clayton and Marion P. Clayton dated January 28, 1992, recorded Deed Book 549, Page 59. LESS AND EXCEPT the following described property:

1. 15.00 acres depicted on "Plat of Section A of Stonehouse Commerce Park at Stonehouse for Stonehouse, Inc." dated 10/10/95, made by Langley and McDonald, P.C., recorded in Plat Book 62, Pages 94-96, as conveyed to Amoco/Enron Solar by deed dated October 12, 1995, recorded in Deed Book 758, Page 721;

2. 11.1906 acres, depicted as Parcel A on "Plat of Section A of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." dated 10/10/95, made by Langley and McDonald, P.C. recorded in Plat Book 62, Pages 94-96, as conveyed to The Industrial Development Authority of James City County by deed dated September 30, 1996 recorded in Deed Book 809, Page 728;

3. 4.600 acres, depicted as Stonehouse Commerce Park, Section B, Parcel A on that plat entitled "Plat of Section B of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 1/23/98, recorded in Plat Book 68, Pages 60-61, as conveyed to The Barre Company, L.L.C., by deed dated March 3, 1998, recorded as Document No. 98-4099;

4. 6.245 acres, as depicted on "Plat of Boundary Line Adjustment Stonehouse Commerce Park Between Avid Realty, L.L.C. and Stonehouse Inc." dated May 2, 2002, made by AES Consulting Engineers, recorded in the Clerk's Office aforesaid in Plat Book 87, Page 89, of which 3.100 acres, depicted as Stonehouse Commerce Park, Section B, Parcel B on that plat entitled "Plat of Section B of Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 1/23/98, recorded in Plat Book 68, Pages 60-61, was conveyed to Avid Realty, L.L.C., by deed from Stonehouse Inc., dated June 23, 1998, recorded as Document No. 98-11721;

5. 74.3712 acres, depicted as "Stonehouse Commerce Park, Section C, Parcel A" on the plat entitled "Plat of Section C of Stonehouse Commerce Park at Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Langley and McDonald, P.C., dated 3/22/99, recorded in Plat Book 73, Pages 38-39, as conveyed to Wachovia Capital Investments, Inc., by deed from Stonehouse Inc. dated May 17, 1999, recorded as Document No. 99-11248;

6. 4.1278 acres, depicted as "Stonehouse Commerce Park, New Parcel B-1, Section C" on the plat entitled "Resubdivision Plat of Section C, Parcel B of Stonehouse Commerce Park at Stonehouse Commerce Park at Stonehouse for Stonehouse Inc." made by Landmark Design Group, dated 4/5/00, recorded in Plat Book 77, Pages 28-29, as conveyed to Friendship Partnership, LLC. by deed from Stonehouse Inc. dated April 6, 2000, recorded as document No. 00-7666;

7. Parcel A-2B containing 4151 S.F., Parcel A-2A containing 2750 S.F. and Parcel A-lA containing 2050 S.F., all as depicted on "Resubdivision Plat of Section A, Parcel A of Stonehouse Commerce Park at Stonehouse for the Industrial Development Authority of the County of James City, Virginia"

made by Landmark Design Group, dated M rch 17, 2000, last revised June 23, 2000, recorded in Plat Book 78, Pages 4-5, and as conveyed t The Industrial Development Authority of James City County by three deeds from Stonehouse Inc ated June 26, 2000, June 23, 2000 and June 23, 2000, recorded as Document Numbers 00-12706, -12707 and 00-12708, respectively;

8. All that certain lot, piece or parcel of l with all improvements thereon and appurtenances thereunto belonging, situate, lying and bei in the County of James City, Virginia, known and designated as "New Parcel," consisting of 3± acres, more or less, as shown on that certain plat entitled, "SUBDIVISION OF THE PROPE TY OF STONEHOUSE AT WILLIAMSBURG, LLC AT STONEHOUSE COMMERCE PARK ONEHOTJSE DISTRICT, JAMES CITY COUNTY, VIRGINIA, made by Landmark Design G up, dated October 24, 2003, and revised October 28, 2003, and recorded in the Clerk's Office of Circuit Court for the County of James City, Virginia as Instrument No. 030039997, to which re nce is here made;

9. All that certain lot, piece or parcel of l with all improvements thereon and appurtenances thereunto belonging, situate, lying and bei in the County of James City, Virginia, known and designated as "Parcel A 24,157 S.F., .056 AC." on that certain plat entitled, "SUBDIVISION PLAT OF PARCEL A & PARCEL B SEC N D, STONEHOUSE COMMERCE PARK BEING A PORTION OF THE PROPERTY OF CO MERCE PARK AT STONEHOUSE, LLC", made by Landmark Design Group, dated Septemb 26, 2005, attached hereto as Exhibit A-I, and the easement rights to be conveyed therewith a oted on the aforementioned plat;

10. All that property shown as "NEW RIG OF WAY" on that certain plat entitled "PLAT SHOWING RIGHT OF WAY BEING THE ENSION OF LAGRANGE PARKWAY AND RE-ALIGNMENT OF A PORTION OF STAT OUTE 600", dated July 8, 2002, last revised January 16, 2003, prepared by LandMark Design up, recorded in the Clerk's Office for the City of Williamsburg and the County of James Ci Instrument Number 030010861.

11. That certain lot or parcel of land loca in the Stonehouse District of James City County, Virginia shown and set out as "Parcel B, 898 S. F., 2.3163 AC." on the plat of subdivision entitled "Subdivision Plat of Parcel A & P B, Section D, Stonehouse Commerce Park Being a Portion of the Property of Commerce Par Stonehouse, LLC", prepared by Landmark Design Group and dated February 16, 2006, consist of three sheets, which plat of subdivision is recorded in the Clerk's Office of the Circuit Court o City of Williamsburg and County of James City as Instrument No. 060009197.

Together with the reservation of easement forth in the following Deeds of Conveyance: Deed Book 758 Page 721, Deed Book 809 728, Document No. 980004099, Document No. 980011721, Document No. 990011248; D ment No. 00007666; and Document No. 020022341.

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 7 June 2010
at 3:53 AM/PM. The taxes imposed by Virginia Code Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk